

WIRELESS ENGINEER

Index to Abstracts and References 1956

Published with the MARCH 1957 issue of

ELECTRONIC & RADIO ENGINEER

(Incorporating *Wireless Engineer*)

TWO SHILLINGS AND SIXPENCE

VOLUME 33

**WIRELESS
ENGINEER**

1956

**As from the January 1957 issue, Wireless Engineer
is incorporated in**

ELECTRONIC & RADIO ENGINEER

**Published by Iliffe and Sons Limited
Dorset House
Stamford Street
London, S.E.1**

INDEX TO WIRELESS ENGINEER ABSTRACTS AND REFERENCES

VOL. 33. 1956

CONTENTS

<i>page</i>	
1.1	Abbreviations
1.2	Author Index
1.42	Subject Index
1.67	Errata
1.68	List of Journals

SYMBOLS (A) Abstract, (B) Book Review, (C) Note of Correction, (D) Discussion
AUTHOR INDEX A name followed by "and" is that of the first author of a jointly written paper, while the word "with" indicates that the name indexed is that of the second author.

Abbreviations used in the Abstracts and Index

a.c.	= alternating current	c.w.	= continuous wave
d.c.	= direct current	i.c.w.	} = modulated c.w.
h.v.	= high voltage	m.c.w.	
l.v.	= low voltage	s.w.*	= short wave
a.f.	= audio frequency	u.s.w.*	= ultra short wave
i.f.	= intermediate frequency	λ	= wavelength
r.f.	= radio frequency, including:—	c.r.	= cathode ray
v.l.f.	= very low frequency, < 30 kc/s	c.r.o.	= cathode ray oscilloscope
l.f.	= low frequency, 30–300 kc/s	d.f.	= direction finding
m.f.	= medium frequency, 300–3000 kc/s	e.m.	= electromagnetic, <i>but</i>
h.f.	= high frequency, 3–30 Mc/s	e.m.f.	= electromotive force
v.h.f.	= very high frequency, 30–300 Mc/s	a.f.c.	= automatic frequency control
u.h.f.	= ultra high frequency, > 300 Mc/s	a.g.c.	= automatic gain control
a.m.	= amplitude modulation	a.ph.c.	= automatic phase control
f.m.	= frequency modulation	a.v.c.	= automatic volume control
p.m.	= pulse modulation, including:—	m.u.f.	= maximum usable frequency
p.a.m.	= pulse amplitude modulation	p.p.i.	= plan position indicator
p.c.m.	= pulse code modulation	s.s.b.	= single sideband
p.f.m.	= pulse frequency modulation	d.s.b.	= double sideband
p.ph.m.	= pulse phase modulation	s.w.r.	= standing wave ratio
p.p.m.	= pulse position modulation	v.f.o.	= variable frequency oscillator
p.w.m.	= pulse width modulation	R/T	= radiotelephony
ph.m.	= phase modulation	W/T	= wireless telegraphy
v.m.	= velocity modulation	TV	= television

* No clearly defined limits

AUTHOR INDEX

- Abdel-Halim Ahmed.** See Ahmed, Abdel-Halim.
- Abe, H.,** with others, magnetic resonance in $\alpha\text{-Fe}_2\text{O}_3$, 486
- Abe, R.,** Barkhausen pulses in Rochelle salt, 2774
- Abe, S.,** with T. Nagata, distribution of SC* in high latitudes, 106
- Abe, Y.,** with others, observation of nuclear resonances with coaxial-cavity spectrometer, 1696
- Abel, W. G.,** and others, ionospheric propagation at frequencies exceeding m.u.f., 245
- Abeles, B.,** and S. Meiboom, galvanomagnetic effects in Bi, 2141
- Abel's, V. R.,** with Ya. S. Shur, Si-Fe crystals, magnetic structure of, 824, nucleation centres in, 1464
- Abetti, P. A.,** G. E. Adams and F. J. Maginniss, oscillations of coupled windings, 1636
- Abgrall, C.,** cell for measurement of dielectric constant, 1814
- Abrikosov, N. Kh.,** and V. F. Bankina, thermoelectric properties of CrSb₂, 3773
- Abson, W.,** and F. Wade, nuclear-reactor-control ionization chambers, 3838
- Accardo, C. A.,** with S. Kronenberg, dielectric changes in inorganic phosphors, 2406
- Adams, A., Jr.,** with others, surface states on Si and Ge surfaces, 2434
- Adams, A. M.,** chemical generation and storage of electricity, 2224
- Adams, D. P.,** three-dimensional nouograms, 510
- Adams, E. N.,** and P. N. Argyres, acceleration of electrons by external field, 3332
- Adams, G. E.,** with others, oscillations of coupled windings, 1636
- Adel, A.,** with others, atmospheric ozone as function of height, 3044
- Adelsberger, U.,** rod wavemeter, 2494
- with others, quartz clocks at the Physikalisches-Technische Bundesanstalt, 3468
- Adey, A. W.,** diffraction by metal cylinders, 409
- Adirovich, E. I.,** generalized admittances for various triode connections, 2527
- and G. M. Guro, times of electronic processes in semiconductors, 3414
- and V. G. Kolotilova, transfer characteristics of semiconductor triodes, 1892; propagation of pulse in semiconductor, 3243
- Adler, F. P.,** missile guidance by 3-dimensional proportional navigation, 3177
- Adler, R.,** O. M. Kronhout and P. A. Clavier, transverse-field travelling-wave valves, 1252
- Agranovskaya, A. I.,** with others, high permittivity of niobates and tantalates, 3402; ferroelectric properties of stannates, 3405
- Agy, V.,** ionospheric effects produced by solar-flare radiation, (D)3376
- Aharoni, A.,** E. H. Frei and G. Horowitz, circuit element using magnetoresistive effect, 1319
- Ahmed, Abdel-Halim,** circuit for measurements, 2488
- Aigrain, P.,** and J. des Cloizeaux, effective mass of electrons in InSb, 815
- C. Rigaux and J. M. Thuillier, thermomagnetolectric effects in InSb, 2120
- Ainsworth, J.,** with H. E. LaGow, upper-atmosphere measurements with rockets, 2377
- Airapetyants, S. V.,** with others, semiconductor thermocouples, 2430
- Aiya, S. V. C.,** and K. R. Phadke, atmospheric interference at Poona, 1202
- Aiyama, Y.,** with others, uniaxial anisotropy in Fe-Co ferrites, 1467
- Akabane, K.,** with others, solar enhanced region at cm λ from eclipse observations, 2043
- Akasofu, Syun-ichi,** thermal upward flow in ionosphere, 1048; geomagnetic control of F₂ layer, 3051
- Akcasu, Z.,** amplitude limitation in LC oscillators, 2667
- Akhiezer, A. I.,** and G. Ya. Lyubarski, theory of coupled cavity resonators, 2655
- and A. G. Sitenko, plasma oscillations in external field, 3018
- Akima, H.,** with K. Kawakami, time constants of detectors in noise measurements, 1864; measuring radio noise voltage, 3137
- Akulov, N. S.,** magnetic moments of ferromagnetic materials, 1779; magnetostriction of Ni single crystals, 2143; theory of ferro-, para- and ferri-magnetism, 3797
- Albin, A. L.,** and J. McManus, interference control in aircraft, 1539
- Alekseevski, N. E.,** N. B. Brandt and T. I. Kostina, galvanomagnetic properties of Bi, 1472
- Aléonard, R.,** J. C. Barbier and R. Pauthenet, properties of yttrium ferrite, 3114
- with J. C. Barbier, paramagnetism of rare-earth ferrites, 1789
- Alexander, E.,** with others, influence of alternating electric fields on light emission of phosphors, 446; recombination on Ge surfaces, 2442
- Alexander, N. E.,** with others, aerosoloscope counts particles in gas, 1836
- Alexander, W.,** tolerance limits in matching, 1985
- Alfrey, G. F.,** and J. B. Taylor, electroluminescence in ZnS, 781
- Alfvén, H.,** sun's general magnetic field, 2714
- Alkemade, C. T. J.,** with K. J. J. Zijlstra, flicker noise in photoelectric diodes, 3569
- Allan, A. H.,** D. D. Crombie and W. A. Penton, frequency variations in New Zealand of transmissions from GBR, 1482
- Allanson, D.,** with others, underwater television camera, 1226
- Allcock, G. McK.,** ionospheric absorption at l.f. and m.f., 755; prediction of m.u.f.s, 3196
- with M. G. Morgan, observations of whistling atmospherics, 1724
- Allen, C. P.,** and G. M. Clarke, wavelength measurements on tape helices, 2284
- Allen, D. N. de G.,** application of relaxation methods of computation, 3821
- Allen, J. W.,** properties of dislocations in Ge, 3428
- and I. M. Mackintosh, implications of small energy gap and electron mass in InSb, 145
- and K. C. A. Smith, electron microscopy of etched Ge surfaces, 1447
- with I. M. Mackintosh, lifetime of carriers in InSb, 1773
- Allen, R. B.,** and H. E. Farnsworth, effect of ion bombardment of Ge on point-contact rectification, 3240
- Allen, T. K.,** R. A. Bailey and K. G. Emeléus, appearance of oscillating discharges, 633
- with K. G. Emeléus, plasma-electron oscillations, 86
- Allen, V. H.,** laboratory equipment for quantizing speech, 1540
- Allen, W.,** with others, spectral energy distribution of ZnS-Ag and ZnCdS-Ag, 2762
- Allison, F. E.,** and E. M. Pugh, temperature dependence of Hall coefficients in Cu-Ni alloys, 3801
- Allison, J.,** and F. A. Benson, attenuation of ferromagnetic waveguides, 2288
- Almond, J.,** and A. R. Boothroyd, transistor feedback amplifiers, 1347
- Alston, L. L.,** voltage divider containing nonlinear unit, 2490
- Altanski, Yu. M.,** with N. A. Gozhenko, resistance of metal/semiconductor contact, 3441
- Altman, F. J.,** and W. Sichak, simplified diversity system for beyond-horizon links, 3185
- Ambolt, N.,** with J. Egedal, effect on geomagnetism of solar eclipse, 107
- Arment, W. S.,** and M. Katzin, fluctuations in long-range over-water propagation, 3185
- van Amerongen, C.,** with others, dielectric losses of quartz, 451
- Ames, L. A.,** P. Newman and T. F. Rogers, v.h.f. tropospheric over-water measurements far beyond horizon, 234
- Amman, F.,** and L. Dadda, design of pole faces for circular particle accelerators, 2503
- Anan'eva, A. A.,** nondirectional ceramic sound receivers, 3275
- Anderson, A. E.,** with others, post-deflection-focus colour kinescope, 3894
- Anderson, A. G.,** and others, spin-echo storage, 1038
- Anderson, G. P.,** 2-m transmitter-converter, 1214
- Anderson, J. C.,** phase comparator, 1505
- Anderson, J. M.,** and L. Goldstein, interaction of e.m. waves in plasma, 1383; collision cross-section of He for slow electrons, 3351
- Anderson, L. J.,** and E. E. Gossard, prediction of oceanic duct propagation, 2876
- Anderson, P. A.,** and A. L. Hunt, work function of Pb, 3112
- Anderson, P. W.,** ordering and antiferromagnetism in ferrites, 3454
- and H. Hasegawa, considerations on double exchange, 1117
- with others, line width in ferromagnetic resonance, 2033; new low-temperature ferromagnets, 3804
- Anderson, R. E.,** and others, telemetering aerial system for supersonic aircraft, 2623
- Anderson, R. S.,** with others, 3-mm- λ radiation from sun, 740
- Anderson, S. P.,** with W. Susksmith, general-purpose electromagnet, 3711
- Andrá, W.,** and E. Schwabe, rendering elementary magnetic domains visible, 1121
- André, P.,** I. Kazes and J. L. Steinberg, atmospheric absorption at 9-35 km/s, 2737
- Andresclani, V.,** measurement of magnetic field, 2485
- and D. Sette, nuclear-resonance meter for magnetic flux, 3480
- Andrew, J. F.,** infrared response of pyrolyzed organic films, 3394
- Andrews, D. H.,** with others, cathode-ray recorder, 2263
- Andrieux, G.,** passive reflectors for radio beams, 1964
- Andrievski, A. I.,** and M. T. Mishchenko, growth of Cu₂O crystals at high temperature, 2799; occlusions of CuO in Cu₂O layers, 3105
- and V. A. Zhuravlev, photoconductivity of SnO₂, 3396
- Andrus, J.,** with W. L. Bond, photographs of edge dislocations, 2438
- Angelov, A.,** with others, self-sustained electronic spokes in magnetrons, 1587
- Anglès d'Auriac, H.,** colour television, 2891
- Anisimov, E. V.,** and N. M. Sovetov, propagation along helical strip, 2955
- Ankel, T.,** propagation of optical-type signals in dispersive medium, 2365
- Anslow, N. G.,** navigation aids for Bristol Britannia, 2073
- Antenen, K.,** mechanism of electrets, 1797
- Antonov-Romanovski, V. V.,** and L. A. Vinokurov, reduction of luminous output of phosphors, 3079
- Aono, Y.,** and K. Muramatsu, field intensity of ground wave over mixed paths, 542
- Aoyagi, K.,** with others, domain structure in cubic solid solutions, 3802
- Apfel, J. H.,** and L. N. Hadley, exciton absorption in Cu₂O 1769
- Apker, L.,** with E. Taft, photoelectric emission from graphite, 771
- Appel, J.,** properties of Ag₂Te, 2801
- Appelt, O. H.,** K. Christ and K. Schmid, microwave television radio relay, 2546
- Appleton, E. V.,** and A. J. Lyon, ionospheric layer formation under quasi-stationary conditions, 755
- and W. R. Piggott, storm phenomena and solar-cycle variations of F₂ layer, 755
- A. J. Lyon and A. G. Pritchard, detection of S_q current system in ionosphere, 1049
- A. J. Lyon and A. G. Turnbull, distortion of E layer by electrical currents, 752

- Arai, M.**, with T. Takahashi, wide-band v.h.f. wattmeter, 534
 — with others, measurement of spurious emissions, 1811
Arai, Y., with others, 40–50-Mc/s overtone quartz units, 2330
Arato, H., with others, dissociation of BaO under electron bombardment, 3260
Arbon, R. S., and G. Phyllip-Jones, ferroresonant computing circuits, 2647
Archard, G. D., chromatic correction for electron lenses, 1180
Archbold, R. B., with D. L. Richards, development of Collard principle of articulation calculation, 3873
von Ardenne, M., precision c.r.o., 1495
Argence, E., propagation in ionized media, 755
Argentieri, D., gravitational influence of Jupiter, 3040
Argirovic, M., influence of temperature and humidity on electrical constants of ground, 102; phase constant of ground wave, 544
Argyres, P. N., with E. N. Adams, acceleration of electrons by external field, 3332
Arima, Y., with others, wave reflected from ionosphere, field strength of 900, divergence factor of, 1849
Armitage, M. D., battery-operated oscillators and detectors for a.c. bridges, 529
Armstrong, H. L., simplified approach to hysteresis, 2346; bistable circuits using triode-pentodes, 2999
Armstrong, L. D., C. L. Carlson and M. Bentivegna, *p-n-p* transistors using high-emitter-efficiency alloys, 2563
Arnal, R., microdischarges in vacuum, 1025
Arnold, A. H. M., Ni-Cr-Al-Cu resistance wire, 3085
 — with H. D. Hawkes, wattmeters, 1168
Arnold, R., recent investigations on graphite, 803
Aron, J., and G. Groetzinger, photomagnetolectric effect in Ge, 1449
Arrazau, J., ferrocube-pot-cored coils, 2646
Arsen'eva-Gell', A. N., influence of external photoeffect of Ge, 2754
Artman, J. G., and P. E. Tannenwald, susceptibility tensor in ferrites, 495
Artym, A. D., new method of phase modulation, 287
Asano, S., spectral distribution of phosphorescence of ZnS-type phosphors, 1431
Ascher, E. A., Hall effect and spontaneous magnetization, 1784
Ashburn, E. V., measurement of auroral radiation with G-M tube photon counter, 3740
Ashwell, G. E., and C. S. Fowler, phase change of l.f. ground waves, 3857
 — with B. G. Pressey, deviation of l.f. ground waves at coast-line, 3195
 — with others, phase of l.f. ground wave propagated across coast-line, 3194
Askar'yan, G. A., generation of mm waves by electron bunches, 3701
Aspinall, E., with others, impedance measuring set, 3149
Assmus, F., and R. Boll, measurements with Hall generator, 3481
Astbury, N. F., residual effects in Campbell bridge, 205
Astoin, N., with J. Granier, absorption spectrum of NO in far ultraviolet, 2347
Astuni, E., solution, of cubic equation, 194, of quartic equations, 506
Aswath, H. S., with N. R. Srinivasan, contact angle in soldering, 1479
Atherton, A. H., secondary-emission valve, 2919
Atlas, D., with others, detectability of clouds by 1.25-cm radar, 2749
Austin, I. G., and R. Wolfe, properties of semiconducting diamond, 2784
Averbach, B. L., with others, effect of dislocations on minority carrier lifetime, 2435
Avery, D. G., and J. B. Gunn, modulated light spot in semiconductor measurements, 1081
 — and D. P. Jenkins, measurements of diffusion length in InSb, 145
Avins, J., and T. Brady, locked-oscillator quadrature-grid f.m. detector, 1534
Awatani, J., behaviour of Rayleigh disk for high-frequency waves, 2603
Awender, H., E. Becker and K. Sann, vacuum-plating equipment for quartz crystals, 503
Axon, P. E., with E. D. Daniel, absolute measurements in magnetic recording, 318
Ayers, E. W., E. Aspinall and J. Y. Morton, impedance measuring set, 3149
Ayres, W. P., P. H. Vartanian and J. L. Melchor, frequency doubling in ferrites, 2138
 — with others, energy concentration in ferrite-loaded waveguides, 1615
d'Azambuja, M., sunspots, identification of, 101, east/west asymmetry of, 1396
Azbel', M. Ya., and E. A. Kaner, anomalous skin effect, 3022
 — with others, galvanomagnetic phenomena in metals, 3021
Azotvsev, V. K., with others, electron mirrors and observation of domains in ferromagnetic materials, 1794
- Baba, H.**, H. Chitoku and K. Nitta, photoelectric phenomena with copper phthalocyanine, 2428
Bachel, J., K. L. Lenz and O. Zinke, resistance of sheets, strips etc. at 10 c/s–100 kMc/s, 1634
Bachman, C. H., M. L. Sawyer and W. Allen, spectral energy distribution of ZnS-Ag and ZnCdS-Ag, 2762
Bachman, H. L., automatic plotter for waveguide impedance, 1822
Bagley, A. S., and D. Hartke, precision frequency-measuring system, 524
Bahadur, K., with E. W. Müller, field ionization at metal surface, 3329
Balley, D. K., scattering from ionospheric irregularities, 755
 — R. Bateman and R. C. Kirby, v.h.f. transmission by scattering in lower ionosphere, 243
Bailey, R. A., resonant-cavity torque-operated wattmeter, 2495
 — with others, appearance of oscillating discharges, 633
Bailin, L. L., radiation field of slot in cylinder, 1623
Bain, W. C., Adcock direction finder, 758; design of h.f. d.f. systems, 1422; fluctuations in c.w. radio bearings, 3065
Baker, W. J., unattended broadcasting transmitters, 1753
Baker, W. P., 50-c/s null indicator for h.v. bridges, 214
Bakos, G. P., mechanical aspects of magnetic-recorder design, 2280
Balaban, P., with I. Cederbaum, drift compensation in d.c. amplifiers, 360
Balachandran, M., dielectric constant of building materials, 1741
Balash, W., J. Dempsey and E. F. Rexer, oxide-impregnated Ni-matrix cathode, 626
Balcou, Y., with others, influence of light on absorption of e.m. radiation by Se, 2431
Ballard, S. S., with K. A. McCarthy, thermal conductivity of Ge, 474
Bal'yan, R. Kh., push-pull magnetic amplifier, 3013
Banbury, P. C., with J. D. Nixon, surface lifetime in Ge in electric fields, 3099
Banerjee, D. K., P. G. Surange and S. K. Sharma, ionospheric observations at Banaras during solar eclipse, 2514
Banerji, R. B., irregularities causing fading of 150-kc/s waves, 1415
Bankina, V. F., with N. Kh. Abrikosov, thermoelectric properties of CrSb, 3773
Banks, E., with P. M. Jaffe, oxidation states of Eu in phosphors, 1064
Banner, E. H. W., electronic measuring instruments, 1818
Barabaschi, S., C. Cottini and E. Gatti, high-sensitivity pulse trigger circuit, 1336
Baral, S. S., ionospheric prediction methods, 3854
Baranovski, S. N., D. L. Kaminski and V. M. Kel'man, electron-optical properties of magnetic gaps, 1178
Barber, D., current noise in PBS, 1109
Barber, D. R., changes in sky brightness accompanying geomagnetic activity, 744
Barber, N. F., correlation theory of fading signals, 3200
Barbier, J. G., and K. Aléonard, paramagnetism of rare-earth ferrites, 1789
 — with others, properties of yttrium ferrite, 3114
Barbier, M., deposition of charges on insulators by secondary emission, 2262, 2922
Barbier-Andrieux, M. J., preparation of Ge-Si alloys by electrolysis, 3103
Barbour, J. P., with W. P. Dyke, electron projection microscopy, 2863
 — with others, temperature-and-field emission from tungsten, 392; electron emission from clean tungsten, 1912
Barchukov, A. I., and others, electromechanical stabilizer for klystron frequency, 58
Bardeen, J., and D. Pines, electron-phonon interaction in metals, 379
Bardeen, S. E., with others, Glasgow 340-MeV synchrotron, 538
Bardsley, W., and B. W. Straughan, spiral etch pits in Si, 2788
 — with C. A. Hogarth, effect of illumination on noise of Si filaments, 1089
Barker, R. H., pulse transfer function and application to servo systems, 267; digital data-transmission, transducer for, 1518, servo system for, 1553
Barkhatov, A. N., sound shadow in medium with vertical gradient, 308; attenuation of ultrasonics in water, 1929
Barlow, H. E. M., and L. M. Stephenson, Hall effect and application to power measurement, 1488
 — with W. M. G. Fernando, radial cylindrical surface waves, 2282
Barnard, C. R., illumination of radar operation rooms and signal detection threshold, 1730
Barnett, G. F., and others, beam-indexing 'apple' tube, 3893
Barrett, J. F., and J. F. Coales, analysis of nonlinear control systems, 2498
Barrie, R., electronic conduction in solids, 3331
 — and J. T. Edmond, study of conduction band of InSb, 145
Barrington, A. E., cantilever cathode for c.w. magnetron, 1595; reduction of minimum striking voltage of thyratrons, 2341
Barron, T. H. K., research in semiconductors, 2778
Barry, J. N., and G. W. Secker, radio interference measuring set using transistors, 1537
Barsis, A. P., with others, fading in propagation through turbulent atmosphere, 250
Barstow, J. M., ABC's of colour television, 550
Barsukov, O. M., measurements of elliptically polarized e.m. field, 2836
Bartenstein, R., A. Bergman and L. Menstell, h.f. interference by 380-kV installations, 2212
Barthel, K., television transmission on cables, 577
Bartman, F. L., and others, upper-air density by falling-sphere method, 3723
Barton, R. S., with others, high-power demountable klystron for X band, 944
Barzilal, G., calculation of input conductance of cylindrical aerial, 981
Basard, R., reliability of Greek radio-link system, 1207
Basnett, T. N., factors affecting valve life, 936
Basov, N. G., and A. M. Prokhorov, methods of obtaining active molecules for molecular generator, 402; molecular-beam oscillator and amplifier, 3709
 — V. G. Veselago and M. E. Zhabotinski, increasing *Q* factor of cavity resonator, 348
Bass, F. G., with I. M. Tsidil'kovski, equations of transport in strong electric fields, (D)458
Bassole, P., and J. Eldin, utilization of valves on French long-distance lines, 2254
Bataille, M., equilibrium states of bistable flip-flop, 2648
Bateman, R., with others, v.h.f. transmission by scattering in lower ionosphere, 243

- Bates, D. R.**, and B. L. Moiseiwitsch, Meinel hydroxyl system in night airglow, **3042**
- Bates, L. F.**, ferromagnetic domains, **1780**
 — and A. Hart, magnetization curves and domain structure, **3450**
 — and D. H. Martin, domain structures in alnico, **176**; domain nucleation in Si iron, **2452**
 — and N. P. R. Sherry, reversible and irreversible components of magnetothermal effect, **823**
 — and A. W. Simpson, thermal effects associated with magnetization, **1130**
- Batthey, J. F.**, and R. M. Baum, carrier capture in Ni-doped Ge, **1764**
- Bauch, H.**, 'frequency group' and loudness, **2944**
- Bauer, F. L.**, operating-parameter matrix of quadrupoles, **1990**
- Bauer, J.**, and J. Valloton, coaxial-cable carrier-current systems, **908**
- Baum, R. M.**, with J. F. Batthey, carrier capture in Ni-doped Ge, **1764**
- Baur, K.**, phase centre of aperture radiators, **1962**
- Bayard, M.**, Théorie des Réseaux de Kirchhoff. Régime sinusoïdal et Synthèse, (B)1348
 — and K. Roquet, arithmetical characterization of messages, **2531**
- Bayr, H.**, with W. Schaffeld, propagation in circular waveguides near cut-off, **2619**
- Bayet, M.**, kinetic theory of Lorentz gas, **2691**
- Bazhenov, V. A.**, piezoelectric properties of wood and cellulose, **2770**
- Bazzard, G. H.**, with C. W. Spencer, semi-automatic pen-recorder chart analyser, **3822**
- Beam, W. R.**, noise figure of travelling-wave valves, **622**; interception noise in electron beams, **1594**
 — and D. J. Blattner, phase distortion in travelling-wave valves, **2573**
 — with R. C. Knechtli, electron guns for noncircular spots, **3593**
- Bean, B. R.**, meteorological effects on scattered v.h.f. waves, **3185**
 — and F. M. Meaney, refractivity gradient and tropospheric propagation, **241**
- Bean, C. P.**, hysteresis loops of mixtures of ferromagnetic powders, **1128**
 — with I. S. Jacobs, elongated fine-particle magnets, **1461**
 — with W. H. Meiklejohn, new magnetic anisotropy, **3803**
 — with D. S. Rodbell, reversal of magnetization in tapes, **1126**
- Beattie, J. R.**, and G. K. T. Conn, surface resistance of metals at infrared frequencies, **1076**
- Behlavi, Sh. L.**, reliability of operation of systems, **2217**
- Bechert, K.**, comments on nonlinear electrodynamics, **84**
- Bechmann, R.**, temperature coefficient of quartz resonators, **1323**, influence of overtone order on, **346**; constants of polarized BaTiO₃ ceramics, **3082**
 — and V. Durana, temperature variation of quartz resonators, **1639**
- Beck, A.**, stability of thermistors, **1977**
- Beck, A. C.**, waveguide investigations with $m_{\mu s}$ pulses, **1808**
- Beck, A. H.**, and others, diffusion cathode, **1258**
- Becker, E.**, with others, vacuum-plating equipment for quartz crystals, **503**
- Becker, G.**, with others, quartz clocks at the Physikalisch-Technische Bundesanstalt, **3468**
- Becker, J. A.**, and R. G. Brandes, seeing molecules in field-emission microscope, **2505**
- Becker, W.**, variations of f_0F_2 during undisturbed conditions, **755**
- Becking, A. G. T.**, H. Groendijk and K. S. Knol, noise factor of four-terminal networks, **691**
- Beckmann, B.**, and K. Vogt, observations of s.w. back-scatter, **896**
- Bedard, F.**, H. Meissner and G. E. Owen, electron emission from superconductors, **3340**
- Bedford, B. D.**, C. H. Willis and G. C. Dodson, optimum core shape for magnetic amplifiers, **340**
- Bedos, R.**, and P. Jean, relaxation oscillations in triode valve, **1652**
- Bedrosian, E.**, curved passive reflector, **2631**
- Bedrosian, S. D.**, and R. McCoy, Jr, normalized filter design, **1646**
- Behar, I.**, micrographic study, of Cu ferrite, **1119**, of Li ferrite, **3113**
- Beitscher, H. R.**, with others, acoustic attenuation of ear protective devices, **3618**
- de Belatini, P.**, multipotentials of multipoles, **2349**; coils with parallel windings, **3660**
- Belger, E.**, 'spitting' effect in u.s.w. reception, **552**
 — and F. von Rautenfeld, required interference-protection ratios for medium-wave transmitters, **1863**; shared-channel operation with frequency offset, **1869**
 — E. A. Pavel and H. Rindfleisch, influence of delay distortion on quality of broadcasts, **266**
- Belikova, T. P.**, phosphorescence of ZnS-Cu, **3080**
- Bell, D. A.**, phenomenological approach to current noise, **480**; distribution function of semiconductor noise, **818**
- Bell, W. S.**, and C. W. Schultz, shipboard telemetry for missiles, **3180**
- Bellman, R.**, perturbation methods involving expansions, **505**
- Belohoubek, E.**, wide-band junction between coaxial line and waveguide, **661**
- Belova, E. N.**, with others, structure of Tl₂Sb₂Se₃, **2448**
- Below, F.**, and H. Grabke, influence of optical system on television picture, **1233**
 — and E. Schwartz, position of colour subcarrier in 625-line adaptation of N.T.S.C. system, **1878**
- Belrose, J. S.**, M. H. Devenport and K. Weekes, radio observations on 23rd February 1956, **2717**
- Belsterling, C. A.**, analysis of differential magnetic amplifier, **2344**
- Bernski, G.**, lifetime of electrons in *p*-type Si, **1085**
- Bendell, S. L.**, with H. N. Kozanowski, film requirements and masking techniques for colour television, **3546**
- Béné, G.**, with others, nuclear magnetic resonance in weak fields, **1694**
- Benedek, G. B.**, W. Paul and H. Brooks, effect of pressure on *n*-type Ge, **1452**
- Beneking, H.**, active quadrupoles with intermediate-point earthing, **1338**
- Benner, A. H.**, and R. F. Drenick, detection of pulsed signals in noise, **439**
- de Bennetot, M.**, permanent magnets for microwave valves, **1254**; oscillation modes of M-type carcinotron, **3255**
- Bennett, D. C.**, and B. Sawyer, single crystals produced by zone levelling, **3102**
- Bennett, H. E.**, with others, velocity of light, **1352**
- Bennett, J. M.**, with others, velocity of light, **1352**
- Bennett, W. P.**, u.h.f. beam power valve, **635**
- Bennett, W. R.**, methods of solving noise problems, **2527**
- Bennington, T. W.**, long-distance v.h.f. interference, **550**; effects of ionospheric storms over North Atlantic circuit, **1193**; ionosphere review 1955, **1419**
- Benoit, J.**, and E. Naschke, permeability of conductors at high frequency, **2307**
- Benoit, R.**, low-frequency noise of geomagnetic field, **3061**
- Benoit, R. C., Jr.**, and M. W. Furlow, wide-aperture direction finders, **330**
- Benson, F. A.**, and L. J. Bental, glow-discharge stabilizers, **640**; glow-discharge tubes, **1263**; wide-range voltage stabilizers, **3890**
 — and G. V. G. Lusher, effects of heater-voltage variations in stabilizers, **576**
 — and G. Mayo, glow-discharge tubes, running-voltage/current characteristics of, **952**, impedance/frequency characteristics of, **1920**
 — and M. S. Seaman, saturated diodes, (D)1596; a.c. voltage stabilizer, **2887**
 — with J. Allison, attenuation of ferromagnetic waveguides, **2288**
- Bental, L. J.**, with F. A. Benson, glow-discharge stabilizers, **640**; glow-discharge tubes, **1263**; wide-range voltage stabilizers, **3890**
- Bentivegna, M.**, with others, *p-n-p* transistors using high-emitter-efficiency alloys, **2563**
- Bentley, A. D.**, S. K. Ghandi and V. P. Mathis, transistor test equipment, **526**
- Benton, B. M.**, servo amplifiers use power transistors, **3635**
- Benz, F.**, reducing noise effects in p.c.m., **258**
- Benz, W.**, transistor amplifiers with feedback, **703**
- Beranek, L. L.**, broadcast studio redesign, **969**
- Berendt, R. D.**, with others, measurement of correlation coefficients in reverberant sound fields, **1284**
- Berg, H.**, interpretation of drift of field-strength nonuniformities as ionospheric winds, **755**
- Berg, O. E.**, day sky brightness to 220 km, **427**
 — and others, altitude of (O1) 5577A line in night airglow, **3368**
- Berger, H.**, with J. Jacobs, large-area photoconductive X-ray pickup tube, **2864**
- Berger, W.**, and H. J. Butterweck, coils for uniform magnetic fields, **2695**
- Bergman, A.**, with others, h.f. interference by 380-kV installations, **2212**
- Berk, A. D.**, and B. A. Lengyel, magnetic fields in ferrite bodies in microwave cavities, **347**
- Berkhout, H. L.**, television receiver for four standards, **3230**
- Berkowitz, R. S.**, sampling band-limited functions, **1542**
- Berlaga, R. Ya.**, M. A. Rumsh and L. P. Strakhov, photo-e.m.f. of Pb photocells, **3251**
- Berliner, O.**, stereophonic sound system covers Hollywood Bowl, **317**
- Bernard, M. P.**, infrared absorption spectrum of Rochelle salt, **2089**
- Bernard, M. Y.**, with others, Optique électronique I: Lentilles électroniques, (B)3507
- Bernard, W. B.**, series valve modulates amplifier screen grid, **597**
- Bernardini, C.**, stability of current-carrying wire in magnetic field, **1697**
- Berry, R. E.**, with others, photoelectromagnetic effect in CdS, **2404**
- Bershtein, I. L.**, fluctuation of oscillations of klystron generator, **1997**
- Bertaut, F.**, and F. Forrat, structure of rare-earth ferrites, **1790**; perovskites composed of rare earths and transition elements, **2820**
- Bertein, F.**, and W. Chahid, production of slow e.m. waves, **3279**
- Berthet, G.**, improvement of paramagnetic-resonance spectrograph, **1387**
- Berthold, W.**, reversible impairment of phosphors, **445**
 — with K. H. J. Rottgardt, sticking potential of c.r.-tube screens, **637**; properties of luminescent screens under electron bombardment, **3592**
- Bess, L.**, noise in semiconductors, **1111**
- Beste, H. E.**, with others, colour-television-receiver design, **1881**
- deBettencourt, J. T.**, with others, tropospheric propagation beyond horizon, **238**; ionospheric propagation at frequencies exceeding m.u.f., **245**
- Beukers, J. M.**, switched-tuned f.m. unit, **3526**
- Beurle, R. L.**, noise in different types of oscillator, **1648**
- Beverage, H. H.**, E. A. Laport and L. C. Simpson, system parameters using tropospheric scatter propagation, **567**, **3185**
- Beynon, W. J. G.**, solar eclipses and ionosphere, **742**
 — and G. M. Brown, region E and S₂ current system, **2049**
 — and K. Davies, vertical-incidence ionospheric absorption at 2 Mc/s, **755**
- Bezuglyi, P. A.**, A. A. Galkin and G. Ya. Levin, resistance of superconducting tin at 7.3×10^{19} c/s, **1776**
- Bezverkhnii, Sh. A.**, A. L. Osherovich and S. F. Rodionov, atmospheric ozone during solar eclipses, **2374**
- Bhalla, M. S.**, with P. Hariharan, logarithmic megohmmeter, **3152**
- Bhattacharyya, B. K.**, e.m. induction in two-layer earth, **413**

- Bhide, V. G., J. N. Das and P. V. Khandekar**, PbS point-contact rectifiers, 2560
- Bibbero, R. J.**, automation survey, 868
- Bibl, K.**, automatic recording of ionosphere characteristics, 2729
- E. Harnischmacher and K. Rawer, observations of ionospheric movements, 755
- Bickford, L. R., Jr., J. Pappis and J. L. Stull**, magnetostriction and permeability of magnetite and Co-substituted magnetite, 494
- Bilger, R. C.**, and I. J. Hirsh, masking of tones by bands of noise, 3611
- Billam, E. R.**, and I. C. Browne, radio echoes from meteor trails, 2038
- Billard, P.**, chromaticity thresholds in trichromatic system, 583
- Billig, E.**, defects in crystals grown from melt, 3775
- and P. J. Holmes, growth and etching of crystals with diamond structure, 156
- Billing, H.**, and W. Hopmann, micro-program control mechanism, 1629
- Billings, D. E.**, with H. I. Leighton, solar $H\alpha$ filaments and geomagnetic disturbances, 1399
- Bingley, F. J.**, with others, beam-indexing 'apple' tube, 3893
- Biondi, M. A., M. P. Garfunkel and A. O. McCoubrey**, mm-wave absorption in superconducting Al, 2354
- Bird, R.**, with B. R. Taylor, gas-filled diode as digital storage element, 1972
- Birkhoff, G.**, and J. B. Diaz, nonlinear network problems, 2326
- Birkhoff, R. D.**, with others, electron energy losses in metallic foils, 1364
- Birkshaw, D. C.**, operating experiences at Line Grove, 284; American colour television, 1875
- Birks, J. B.**, magnetic anisotropy constants of ferrites, 834
- Birman, J. L.**, zone refining, 820
- Birnbaum, G.**, and H. E. Bussey, refractive-index inhomogeneities in atmosphere, 109
- with A. A. Maryott, microwave absorption in compressed oxygen, 734
- Bischoff, K.**, and others, bolometers at low temperatures, 1499
- Biswas, N. N., V. N. Chiplunkar and V. C. Rideout**, high-speed electronic differential analyser, 24
- Bitter, F.**, with J. F. Waymouth, field-induced colour shift in ZnS, 3398
- Blackband, W. T.**, impedance of coaxial cables, 319
- Blackman, L. C. F.**, and N. P. R. Sherry, anomalous time-constant of MgMn ferrites, 1468
- Blackstock, A. W., R. H. Ritchie and R. D. Birkhoff**, electron energy losses in metallic foils, 1364
- Bladier, B.**, excitation of string by bow, 3270
- Blaine, L. R.**, with others, velocity of light from molecular constants of CO, 69
- Blake, L. R.**, and A. R. Eames, transistor frequency meters, 3494
- Blake, L. V.**, with L. L. Bonham, radar echoes from birds and insects, 3742
- Blakely, C. E.**, with others, ring array as skip-range aerial, 326
- Blakemore, T. R.**, with others, coherent M. T. I. radar on 50 cm, 3387
- Bianc, D.**, behaviour of externally graphited G-M counters, 885
- Bianc-Lapierre, A.**, P. Dumontet and M. Savelli, stationary random functions, 3467; square-law detection of background noise, 3524
- Blankenship, J. R., B. Fitzgerald and R. N. Lane**, objective and subjective observations, on music rooms, 11
- Blassbalg, H.**, with E. M. Glaser, logarithmic voltage quantizer, 1008
- Blatt, F. J.**, effect of point imperfections on electrical properties of Cu, 790, 1112
- Blattner, D. J.**, with W. R. Bean, phase distortion in travelling-wave valves, 2573
- Bleazey, J. C., J. Preston and E. G. May**, miniature loudspeakers, 2277
- Blecher, F. H.**, transistor circuits for analogue and digital systems, 2304
- Blet, G.**, spectral sensitivity of Se photocells, 1898
- Blevins, G. S., W. Gordy and W. M. Fairbank**, superconductivity at mm A, 1356
- Blodgett, K. B.**, removal of Cu from Ge, 1444
- Bloem, J.**, $p-n$ junctions in photosensitive PbS layers, 3250
- Blois, M. S., Jr.**, preparation of thin magnetic films, 181
- Blok, J.**, with K. M. van Vliet, noise in semiconductors, 3796
- Blokh, E. L.**, with A. A. Kharkevich, transmission capacity of communication system, 259
- Blood, H. L., S. Levine and N. H. Roberts**, anomalous polarization in $BaTiO_3$, 3400
- Bloom, S.**, molecular ringing, 3707
- Bloomsburgh, R. A.**, and others, status of 'apple' receiver circuits, 3893
- Blount, E.**, and others, infrared absorption of InSb, 2119
- Blum, E. J., A. Boisshot and M. Ginat**, multiple-aerial interferometer at Nançay, 3644
- with others, eclipse of Crab nebula, 2711
- Blum, P. A.**, and A. Lebeau, elimination of slow variations in recording geomagnetic pulsations, 1402
- Blundell, A. J.**, with others, Ge and Si power rectifiers, 2885
- Blunt, R. F., H. P. R. Frederikse and W. R. Hosler**, properties of Mg₂Sn, 1104
- with H. P. R. Frederikse, photoeffects in intermetallic compounds, 769
- Bobb, L. J.**, and E. C. Gulick, e.s. loudspeaker, 316
- R. B. Goldman and R. W. Koop, design and performance of e.s. loudspeaker, 1298
- Bobber, R. J.**, with C. L. Darner, ultrasonic shutter, 645
- Bobenrieth, A.**, measurement of secondary-emission coefficients, 851
- and O. Cahen, travelling-wave valves developed at C.N.E.T., 3575
- Boberkin, A. S.**, with others, polarization of Rochelle salt exposed to radioactive irradiation, 143
- Bödeker, H.**, with F. Kirschstein, European television transmission network, 274
- Bodenstedt, E.**, analogue computer for differential equation, 2973
- Bodine, J. H.**, with W. E. Danforth, polarization in ThO₂ crystals, 2419
- Boehm, M. J.**, with W. E. Henry, magnetic saturation of γ -Fe₂O₃, 2451
- Boekhorst, A.**, self-oscillating line timebase circuit, 282
- Boella, M.**, and C. Egidi, propagation time of standard time signals, 1190
- de Boer, F.**, and H. Emmens, sedimentation of fluorescent screens, 636
- Böer, K. W.**, and U. Kummel, field breakdown of CdS crystals, 1305
- and H. Vogel, nonstationary processes in photoconductors, build-up in CdS, 1061
- U. Kummel and G. Molgedey, noise in CdS single crystals, 3792
- Boers, Y.**, 4-channel system for Argentine radio links, 1208
- Boesch, W.**, calculation of parallel-connected impedances, 991
- Bogett, B. P.**, 'vobanc', 2943
- Bohlin, T. R.**, distance between poles of magnet, 1684
- Bohlin, T.**, and A. Lagercrantz, forming of negative electrode of electrolytic capacitors, 1983
- Böhm, C.**, iterative process for automatic division, 25
- Bohm, D.**, and W. Schützer, statistical problem in physics and theory of probability, 1349
- Boisshot, A.**, and others, eclipse of Crab nebula, 2711
- with others, multiple-aerial interferometer at Nançay, 3644
- Boivin, A., A. Dion and H. P. Koenig**, diffraction of microwaves, 2699
- Bok, B. J.**, George R. Agassiz radio telescope, 3715
- Bok, J.**, conductivity of InSb at low temperature, 2803
- Bokov, V. M.**, with others, capacitance analyser of sound field, 964
- Boлиндер, E. F.**, sensitivity of c.r. tubes at v.h.f., 949; optimum transmission-line matching section, (D)3278
- Boll, R.**, with F. Assmus, measurements with Hall generator, 3481
- Bolle, A. P.**, and J. L. Bordewijk, 'negative-frequency' concept, 683
- Bolling, G. F., W. A. Tiller and J. W. Rutter**, growth twins in Ge, 3101
- Boltaks, B.**, diffusion of Sn and Sb in Bi₂Se₃ and Bi₂Te₃, 1110
- Boltaks, B. I.**, and N. N. Tarnovski, electrical characteristics of CuFeS₂, 164
- P. P. Konorov and O. A. Matveev, electrical properties of CdTe, 3789
- O. A. Matveev and V. P. Savinov, electrical properties of ZnTe, 3439
- Bolton, J. G.**, distribution of radio stars, 3712
- Bolz, G.**, resonance enhancement of ultrasonic quartz crystals, 1282
- Börmel, H. E.**, W. P. Mason and A. W. Warner, dislocations etc. of crystal quartz, 2826
- W. P. Mason and A. W. Warner, Jr, experimental evidence for dislocations in quartz, 842
- Bonch-Bruevich, A. M.**, amplitude analysers, 3680
- Bonch-Bruevich, V. L.**, and E. Ya. Pumper, V/I characteristic of $p-n$ junction, 2427
- Bond, W. L.**, micromanipulators, 2811
- and J. Andrus, photographs of edge dislocations, 2438
- Bondarenko, V. V.**, and others, resistance of metals at high current densities, 456
- Bondareva, L. N.**, and M. I. Karnovski, directional properties of sound lenses, 315
- Bonfiglioli, G., E. Coen and R. Malvano**, electric constants of thin films, 2418; modulation of conductivity by surface charges in metals, 2421
- Bonham, L. L.**, and L. V. Blake, radar echoes from birds and insects, 3742
- Bonn, T. H.**, accuracy of c.r.o. measurements, 3490
- Bonnet, M., M. Matricon and E. Koubine**, Faraday effect in plasma, 732
- Bonshtedt, B. E.**, solutions of fundamental equation of electron optics, 78
- Booker, H. G.**, level at which fading is imposed on waves in ionosphere, 1522; scattering by nonisotropic irregularities, 2739; practical aspects of auroral propagation, 3185
- van den Boomgaard, J.**, zone-melting processes, 819, for compounds with negligible vapour pressure, 2810, for compounds with measurable vapour pressure, 3445
- F. A. Kröger and H. J. Vink, zone melting of decomposing solids, 145
- Booth, A. D.**, computing machine as dictionary, 26
- with W. N. Locke, Machine Translation of Languages: Fourteen Essays, (B)2867
- with H. B. Mohanti, electronic Fourier synthesizer, 987
- Booth, C. F.**, and B. N. MacLarty, new h.f. station at Rugby, 2538
- Boothroyd, A. R.**, with J. Almond, transistor feedback amplifiers, 1347
- Boothroyd, W. P.**, with others, status of 'apple' receiver circuits, 3893
- Bordewijk, J. L.**, interreciprocity applied to networks, 2983; TV and f.m. projects in Netherlands, 3235
- with A. P. Bolle, 'negative-frequency' concept, 683
- Borel, J. P., C. Manus and R. Mercier**, flicker noise of Ge diodes, 1576
- Borg, H.**, noise reduction in reception of radar signals, 3743
- Borisenko, A. I.**, with others, ionic pumps with cold electrodes, 3748
- Borneman, E. H., R. F. Schwarz and J. J. Stickler**, rectification properties of metal/semiconductor contacts, 157
- Borovik, E. S.**, galvanomagnetic phenomena and conduction electrons in metals, 822; anisotropy of Hall effect of metals, 3408
- Bose, J. H.**, multiplexing f.m. broadcast transmitters, 264
- Bösenberg, W.**, diffusion of Sb, As and In in Ge, 809
- Bosse, G.**, calculations with noise voltages, 1644
- Böttcher, F.**, capacitor discharge on long line, 3632
- Böttger, O.**, work function of metals and semiconductors, 2352
- Bouchard, J.**, and A. Helaine, ionospheric propagation of decametric waves, 1853
- Boudouris, G.**, spherical-frustum cavities, 2654
- Bouix, M.**, obstacles in path of e.m. radiation, 1689
- M. Clément and C. Fréniot, rain echoes with 3-cm- λ radar with circular polarization, 763

- Bourseau, J., and H. Sandjiv, coupling impedance and cable screens, 1950
- Boutry, G. A., and F. Desvignes, photodiodes and phototransistors as infrared detectors, 935
- Bouvier, P., automatic tracking radar systems, 3389
- Bouziat, J., with K. Roch, influence of splicing on cable impedance, 1951
- with J. A. Ville, signal limited in time and frequency, 1206
- Bowers, K. D., and J. Owen, paramagnetic resonance, 2139
- Bowers, R., and N. T. Melamed, luminescent centres in ZnS:Cu:Cl phosphors, 776
- Bowhill, S. A., transient response of ionosphere at l.f., 755; fading at frequencies between 16 and 2400 kc/s, 2519
- Bowie, D. M., with others, artificial dielectrics with voids, 1437
- Bowness, C., strip transmission lines, 975
- Boxer, R., and S. Thaler, solving linear and nonlinear systems, 999
- Boyet, H., with S. Weisbaum, double-slab ferrite isolator, 1994; broad-band nonreciprocal phase shifts in rectangular guide, 2959
- Boyle, W. S., and F. E. Haworth, glow-to-arc transition, 2356
- Bozorth, R. M., and others, frequency dependence of magnetocrystalline anisotropy, 835
- E. F. Tilden and A. J. Williams, anisotropy and magnetostriction of ferrites, 831
- Braae, R., tensor analysis and linear network theory, (D)682
- Bracewell, R. N., chord construction for correcting aerial smoothing, 98; correcting for running means by successive substitutions, 706
- Brackmann, J., with others, ferrites with permivar-type hysteresis loops, 489
- Bradley, D. E., J. S. Halliday and W. Hirst, stereoscopic reflection electron microscopy, 3170
- Bradley, E. M., with D. H. Pringle, microwave control valves employing negative glow discharge, 1599
- Brady, T., with J. Avins, locked-oscillator quadrature-grid f.m. detector, 1534
- Bragg, J. K., with others, first Townsend coefficient of molecular gases, 395
- Braginski, V. B., radiation during motion of charges near inhomogeneity, 3708
- Brailsford, F., ferromagnetism in relation to engineering materials, 2456
- Bramley, E. N., tilts in ionosphere during solar eclipse, 2060; directional observations on h.f. transmissions, 2515
- Branch, G. M., and T. G. Mihran, plasma-frequency reduction factors in beams, 3573
- Brandes, R. G., with J. A. Becker, seeing molecules in field-emission microscope, 2505
- Brandt, N. B., with others, galvanomagnetic properties of Bi, 1472
- Branscomb, L. M., and S. J. Smith, negative oxygen ions in upper atmosphere, 3053
- with S. J. Smith, negative-ion-photodetachment cross-section, 396
- Brantley, J. Q., Jr, radar speed meters, 866
- Brasier, J., techniques for reliable valves, 3572
- Brattain, W. H., with T. M. Buck, surface recombination velocity of Ge, 1766
- with C. G. B. Garrett, theory of semiconductor surfaces, 146; surface breakdown of transistors, 2561
- with G. L. Pearson, history of semiconductor research, 797
- Braude, B. V., error in method of integral equations in theory of aerials, 2621
- Braun, G., method of stationary phase, 2466
- with W. Glasser, wave-mechanics theory of electron-optical image formation, 707
- Braun, K., response times of gas-filled valves, 953
- Braunbeck, J., and J. Zakovsky, dependence of barrier-layer photo-effect on X radiation, 1245
- Braunstein, R., radiative transistors in semiconductors, 798
- Bray, R., minority-carrier extraction in Ge, 1443
- Bray, W. J., and others, v.h.f. propagation by ionospheric scattering, 1860
- Brazma, N. A., variation and compensation theorems for circuits, 1321
- Breckenridge, F., with others, temperature coefficient of speed of sound in water, 2934
- Bredov, M. M., obtaining *p-n* junction by pulse heating, 3434
- Brenet, J., basic problems of Leclanché cells using MnO₂, 2225
- A. Grund and A. M. Moussard, MnO₂ as depolarizer, 1219
- P. Malessan and A. Grund, depolarization of cells containing MnO₂, 1872
- Brenig, W., do sound waves possess momentum? 1272
- Brenner, R., coercive force, associated with 'Schlauchziehen', 485, theory of, 1124
- Breskend, S. D., with R. W. Tucker, leakage resistance of capacitors, 2321
- Brewer, G. R., effect of magnetic field strength on space-charge-wave propagation, 3254
- Bricout, P. A., electron density and ray tracing in ionosphere layers, 755
- Bridgers, H. E., formation of *p-n* junctions by variation of crystal growth parameters, 3765
- and E. D. Kolb, rate-grown Ge crystals for h.f. transistors, 467
- Bridges, T. J., P. O. Hawkins and D. Walsh, keep-alive instabilities in t.r. switch, 2251
- with others, electrode deterioration in t.r. switches, 2252
- Brière, M., and J. Weill, vibrating-capacitor electrometer, 855
- Briggs, B. H., observations of short bursts from distant 50-Mc/s transmitter, 2516
- and E. S. Page, empirical study of random functions in interpretation of ionospheric movements, 755
- and M. Spencer, variability of time shifts in measurements of ionospheric movements, 755
- Bright, A. W., and J. S. Thorp, measurements on hollow cathode, 1260
- with others, electrode deterioration in t.r. switches, 2252
- Bril, A., and H. A. Klasens, phosphors for tricolor television tubes, 783
- Brini, D., and others, fast sweep circuit, 698
- Brishane, A. D., with others, diffusion cathode, 1258
- Brittain, F. H., and D. M. Leakey, 2-channel stereophonic sound systems, 1946, 2607
- Broad, D. A. G., with A. R. Lang, electron optics of X-ray tubes, 3847
- Broad, E. R., and E. J. P. May, 10-kW low-pass-filter, 47
- Brobeck, W. M., and W. C. Struven, bevatron frequency measurement system, 2483
- Brocklesby, P., and P. Robinson, long-distance v.h.f. radio link, 3879
- Broder, J. D., with others, electroluminescence of GaP, 1433
- Brodie, I., d.c. and pulsed emission from L cathodes, 1915
- and R. O. Jenkins, impregnated cathodes containing SrO or CaO, 2918
- Broersma, C. B., international conference on lighthouses and other navigation aids, 123
- Bronnikova, E. G., parasitic oscillations of piezoelectric plates, 2770
- Bronshstein, I. M., and T. A. Snorodina, secondary emission, from Be, 1679, from Ag, 1680
- Bronzi, G., a.f.c. in frequency-shift radiotelegraphy, 253, (D)2209
- Brooker, R. A., coding for Manchester computer, 333
- Brooks, H., with others, effect of pressure on *n-type* Ge, 1452
- Brophy, J. J., properties of semiconducting diamond, 463; electronic band structure of diamonds, 3774
- and N. Kostoker, Hall-effect noise, 1101
- Broser, I., and K. Broser-Warminsky, luminescence and conductivity of semiconductors, 821
- Broser-Warminsky, R., with I. Broser, luminescence and conductivity of semiconductors, 821
- Brosio, E., measurements on resonant acoustic structures, 2606
- Broussaud, G., diffraction by array of perforated plates, 1628
- Brouwer, G., electrical analogue of domain-boundary motion, 1127
- Browder, L. B., wide-amplitude string galvanometer, 3831
- Brown, A. R. G., and others, conductivities of carbon, 2422
- Brown, G. L., geophysical prospecting for water by means of e.m. interference, (D)3157
- Brown, G. M., with W. J. G. Beynon, region E and S_q current system, 2049
- Brown, H. E., with others, ionospheric recorders and sporadic E, 2730
- Brown, J., and P. J. B. Claricoats, waveguide components with non-reciprocal properties, 3666
- with P. H. Sollom, cm-λ parallel-plate spectrometer, 2478
- with R. E. Collin, equivalent circuit of asymmetrical waveguide junction, 2290; λ/4 matching layers for dielectric surfaces, 2293
- Brown, R. A., lunar variations of F₂ layer at Ibadan, 3731
- Brown, R. G., with G. J. Thaler, Servomechanism Analysis, (B)2544
- Brown, R. H., and R. Q. Twiss, correlation between photons in coherent beams of light, 1666
- H. P. Palmer and A. R. Thompson, polarization measurements on radio sources, 3714
- Brown, W. L., surface potential from semiconductor field-effect measurements, 1078
- Browne, I. C., and others, radio echoes from meteor trails, 2037
- with E. R. Billam, radio echoes from meteor trails, 2038
- Browne, P. F., infrared luminescence of ZnS and CdS phosphors, 3753
- Brownless, S. F., standardized transmitting aerials, 1304
- Bruce, G. D., and J. C. Logue, experimental transistorized calculator, 2305
- Bueckmann, H., helicopter measures antenna patterns, 328
- Bueckner, K. A., with K. M. Watson, study of ionized gases, 2692
- Bühl, G., dm-λ radio-link network providing program channels, 3534
- Bruin, F., and M. Bruin, measurements of paramagnetic resonance absorption line, 2703
- and F. M. Schimmel, theory of autodyne detector, 1664
- Bruin, M., with F. Bruin, measurements of paramagnetic resonance absorption line, 2703
- Bruk, I. S., and N. N. Lenov, electronic differential analyser, 3285
- Bruninghaus, F., c.r.o. for very short h.v. phenomena, 2856
- Bryan, J. S., with others, beam-indexing colour-television display system, 3893
- Bube, R. H., photoconductivity, phenomena in CdS and CdSe, 441, of Zn and Cd sulphides, selenides and tellurides, 770, in CdS crystals, 2755
- with S. M. Thomsen, high-sensitivity photoconductor layers, 611
- Buchanan, G. S., and F. Gutmann, linearity of electrolytic impedances, 3812
- Buck, D. A., cryotron superconductive computer element, 1980
- Buck, T. M., and W. H. Brattain, surface recombination velocity of Ge, 1766
- Buckingham, A. D., birefringence due to intense beam of light, 2680
- and J. A. Pople, dielectric constant of imperfect nonpolar gas, 373
- Buckingham, M. J., very-high-frequency absorption in superconductors, 2355
- Buckingham, W. D., flat-bed facsimile transmitter, 3545
- Buckley, G. V., parallel-*TC* network, 2659
- and others, reproducing equipment for fine-groove records, 2279
- Budden, K. G., method of determining *N(z)* curves from (*h'*, *f*) curves, 755; nonexistence of 'fourth reflection condition' in ionosphere, 755; mathematics of wave propagation through ionosphere, 755
- Buiteman, H. O., Jr, with R. Hertz, perpendicularly superposed magnetic fields, 339
- Buhler, W., Ge diodes for computers, 1629

- de Buhr, J.**, parameters of loss-free quadripoles, 349; geometrical representation, of parallel and series reactance, 1643, of combined quadripoles, 1988, of double transformer, 1989, of loss-free quadripoles, 2331
- Bukke, E. E.**, dielectric constant of phosphors under infrared irradiation, 133
- Bullard, E. C.**, stability of homopolar dynamo, 1401
- Bullington, K.**, beyond-horizon radio transmission, 234
- W. J. Inkster and A. L. Durkee, propagation test at 505 Mc/s and 4090 Mc/s on beyond-horizon paths, 234
- Bullis, W. M.**, and W. E. Krag, Hall effect in oriented crystals of n -type Ge, 2112
- Bullough, K.**, with others, radio echoes from meteor trails, 2037
- Buneman, O.**, magnetron theory, 939
- Bünemann, D.**, delay equalization of television system, 2240
- Bunkin, F. V.**, and N. V. Karlov, sensitivity of radiometers, 221
- Burhidge, G. R.**, halo of radio emission and cosmic rays, 2035
- Bürck, F.**, with L. Heck, sound transformations in broadcasting studio technique, 2948
- Burkard, O.**, variations of F_2 ionization, 2054
- Burks, A. W.**, and I. M. Copi, logical design of computer, 2965
- Burger, H.**, with M. Kornetzki, ferrite cores with rectangular loops in nonuniform fields, 490
- Burgess, R. E.**, noise in illuminated Ge diodes, 290; thermal effects in point-contact rectifiers, 292; admittance of temperature-dependent circuit elements, 676; thermistors and Ge rectifiers, oscillations in, 696, turnover phenomenon in, 994; carrier-concentration disturbances in semiconductors, 792; fluctuations of numbers of electrons and holes in semiconductor, 793; reduction of noise in photoconductive cells, 1248
- Burn, K. C.**, with R. Feinberg, new h.v. low-current triodes, 2261
- Burnett, J. H.**, thyatron grid-control circuit, 2223
- Burov, A. K.**, ultrasonic oscillations for treatment of tumours, 2179
- Burr, R. P.**, and J. R. White, computer gives trisimulus values, 70
- Burris, L. Jr.**, C. H. Stockman and I. G. Dillon, mathematics of zone melting, 1141
- Burrus, C. A.**, and W. Gordy, mm and sub-mm λ spectroscopy, 2156
- Burstein, E.**, with M. Lax, broadening of impurity levels in Si, 1086
- with others, optical properties of deformed Ge, 154
- Burt, E. G. C.**, and O. H. Lange, function generators for analogue computing, 2301
- Burton, M.**, and T. J. Neubert, effect of neutron bombardment on graphite, 3424
- Bushy, J.**, and E. G. Richardson, propagation of ultrasonics in suspensions, 2274
- Busch, G.**, degeneracy of intrinsic semiconductor, simple method of visualizing, 145, graphical treatment of, 460
- and K. A. Müller, Mn impurity centres in grey tin, 478
- Busch, K. J.**, A. D. Hasley and C. Neitzert, magnetic pulse modulators, 36
- Buss, R. R.**, with G. Hetland, Jr, low-ripple regulated power supply, 572
- Bussey, H. E.**, with G. Birnbaum, refractive-index inhomogeneities in atmosphere, 109
- Butcher, P. N.**, lossy periodic waveguides, 2285
- Butler, T. W., Jr.**, H. Diamond and L. W. Carr, nonlinear d.c.-tuned capacitors, 3663
- Butters, R. G.**, and H. P. Myers, structure and magnetic properties of Mn_2AlC , 168
- Butterweck, H. J.**, with W. Berger, coils for uniform magnetic fields, 2695
- Butterworth, J.**, 'light-disk' method of measuring bulk lifetime in semiconductors, 795
- Button, K. J.**, with B. Lax, new ferrite mode configurations, 325, in rectangular waveguide, 324
- Butuzov, V. P.**, and N. Yu. Ikonnikova, liquid inclusions in artificial quartz, 841
- Bycroft, G. N.**, vibrations of circular plate, 1928
- Byham, C. L.**, with others, sensitivity to changes in interruption rate of white noise, 1943
- Byram, E. T.**, T. A. Chubb and H. Friedman, solar X-ray spectrum and density of upper atmosphere, 3375
- Bystrov, G. N.**, detectability of object and number of illuminating pulses, 3067
- Cahannes, F.**, induced electric discharge in rare gases, 1675
- Cabessa, R.**, high-quality radio links over sea paths in Greece, 1207
- Cade, R.**, and D. O. Vickers, e.s. centre of conductor, 2350
- Cagnac, B.**, with others, nuclear magnetic resonance in weak fields, 1694
- Cahen, F.**, and H. Prigent, telecontrol system on 175 c/s in France, 1187
- Cahen, O.**, with A. Hobenrieth, travelling-wave valves developed at C.N.E.T., 3575
- Caicoya, J. I.**, generation of multiple modes between parallel plates, 3495
- Caillon, P.**, and E. Groubert, effects of pressure on dielectric constants of liquids, 2769
- Caldirola, P.**, new model of classical electron, 2681
- Caler, H. R.**, with E. N. Singer, broadband aerial, 1305
- Callahan, W. R.**, flexural vibrations of plates, 2272
- Callaway, J.**, electronic energy bands in Fe, 174
- with others, infrared absorption of InSb, 2119
- Callendar, M. V.**, effect on pulse response of delay variation, 2984
- Calverley, A.**, with others, zone melting by electron bombardment, 2147
- Cambi, E.**, free oscillations in variable-parameter system, 2651; inverse Laplace transforms as Neumann series, 3819
- Camp, P. R.**, etching rate of single-crystal Ge, 1445
- Campbell, D. S.**, observations on etched crystals of $BaTiO_3$, 1074
- and D. J. Stirland, examination of etched crystals of $BaTiO_3$, 2414
- Campbell, I. D.**, transmission of plane wave between parallel plates, 1601
- Campbell, I. E.**, with others, preparation of high-purity thorium, 2144
- Campbell, R.**, orthogonal polynomials with orthogonal derivatives, 2150
- Canac, F.**, visual display of sound waves, 3621
- Candy, C. J. N.**, thermistor as element in very-low-frequency systems, 2315; vector method for a.n. signals, 2529
- Caplan, P. J.**, with H. H. Theissing, atmospheric attenuation of solar mm- λ radiation, 3041
- Cardus, J. O.**, ionospheric sounding equipment, 3735
- Carlin, H. J.**, u.h.f. multiplexer uses selective couplers, 353
- Carlson, C. L.**, with others, p - n - p transistors using high-emitter-efficiency alloys, 2563
- Carlson, R. O.**, properties of near-degenerate B-doped Si, 1442
- Carman, E. H.**, iron powder for permanent magnets, 1478; properties of iron-powder magnets, 1781
- Carniol, B.**, coding by damped-oscillation method, 3210
- Caro, D. E.**, L. H. Martin and J. L. Rouse, variable-energy cyclotron, 229
- Carpenter, C. P.**, C. W. Helstrom and A. E. Anderson, post-deflection-focus colour kinescope, 3894
- Carpenter, J. C., Jr.**, bandwidth requirements of f.m./f.m. telemetering, 3851
- Carr, L. W.**, with others, nonlinear d.c.-tuned capacitors, 3663
- Carrick, G. A.**, Ge power rectifiers, 574
- with others, Ge and Si power rectifiers, 2885
- Carroll, J. M.**, electronics in process industries, 2500; analogue computers, 2966; computer input/output devices, 3653
- Carroll, T. J.**, Marconi's last paper 'On the Propagation of Microwaves over Considerable Distances', 3517
- and R. M. Ring, propagation in normally stratified troposphere, 240
- Carswell, I.**, current distribution on wing-cap and tail-cap aerials, 2625
- Carter, A. W. L.**, angular size of r.f. source Hydra-A, 1703
- Carterson, J.**, E. Fromy and B. Prokocimer, recording r.f. interference, 3488
- de Carvalho, A. A. Pires.** See Pires de Carvalho, A. A.
- Casahona, A. M.**, aerial for AN/URN-3 Tacan beacon, 3386
- Caspari, M. E.**, with R. K. Rau, Faraday effect in Ge, 1098
- Cassedy, E. S.**, with J. M. Minkowski, cross-section of collinear arrays, 2627
- du Castel, P.**, influence of atmospheric turbulence on u.s.w. radio links, 2203
- Cawsey, G. F.**, with J. L. Farrands, microwave observations of detonation, 1833
- Cayless, M. A.**, analysis of gases at low pressure, 2078
- Cazenave, R.**, convergence and summation of Fourier Series, 195; magnetic field, due to circular current, 1033, of thin cylindrical coil, 3699
- Cederbaum, I.**, network determinants, 2325
- and P. Balaban, drift compensation in d.c. amplifiers, 360
- Cetlin, B. B.**, with others, frequency dependence of magnetocrystalline anisotropy, 835
- Chahid, W.**, shunt resistance, of cavities, 1324, of linear accelerators, 1813
- with F. Bertein, production of slow e.m. waves, 3279
- Chakravarti, S. P.**, research in communications in India, 2215
- Chamberlain, J. W.**, resonance scattering by atmospheric sodium, 3728
- with others, photometric unit for airglow and aurora, 3043
- Chambers, L. G.**, propagation in ferrite-filled waveguide, 1956
- Chambers, R. G.**, penetration depth in impure superconducting tin, 3333; cyclotron resonance under anomalous-skin-effect conditions, 3334
- Chambron, W.**, diffraction of cm- λ waves by conducting spheres, 1381
- Champelx, R.**, H. Dormont and E. Morilleau, photomultiplier tube for scintillation counting, 299
- Champion, F. C.**, physical consequences of defects in diamonds, 2786
- Chandrashekha Aiyar, S. V.** See Aiyar, S.V.C.
- Chaney, L. W.**, with others, upper-air density by falling-sphere method, 3723
- Chang, K. K. N.**, periodic focusing for travelling-wave valves, 621
- Chaplin, G. B. B.**, point-contact transistor scaling circuit, 3005
- and A. R. Owens, junction-transistor scaling circuit, 3006
- R. E. Hayes and A. R. Owens, transistor digital fast multiplier, 1631
- Chapman, F. W.**, and R. C. V. Macario, propagation of a.f. radio waves, 3192
- Chapman, J. H.**, K. Davies and C. A. Littlewood, radio observations of ionosphere at oblique incidence, 1850
- Chapman, S.**, rate of change of composition in atmosphere, 745
- and K. C. Westfold, solar and lunar atmospheric tides, 2068
- Chappell, D. W. G.**, and C. L. Henderson, horizontal velocity of ionospheric movements, 2387
- Charles, D.**, and R. J. Warnecke, hydrogen thyatron, 2926
- Charlton, C. B.**, self-healing in metallized-paper capacitors, 3294
- Charru, A.**, with P. Loudette, polarimetric study of ferrite, 3636
- Chase, C. E.**, direct-reading noise-figure indicator, 527
- Chase, R. F.**, with others, Stanford-Seattle whistler observations, 2392
- Chasmar, R. P.**, and R. Stratton, effective electron mass in InAs and InSb, 3793
- Chatterjee, B.**, variation of F-region height, 420; accurate phase measurement of four-terminal network, 3479
- Chatterjee, J. S.**, crust as seat of earth's magnetism, 2719

- Chatterjee, R.**, and S. K. Chatterjee, investigations on dielectric aerials, 3637
- Chatterjee, S. D.**, with H. Rakshit, measurement of ionospheric heights, 754
- Chatterjee, S. K.**, and P. Madhavan, propagation of microwaves on single wire, 16
- and B. V. Rao, artificial dielectrics at microwave frequencies, 1385
- with R. Chatterjee, investigations on dielectric aerials, 3637
- Cheng, C. C.**, design procedures for tuned transistor amplifiers, 368; frequency stability of transistor oscillators, 1334
- Cheng, D. K.**, effect of phase errors on radiation pattern, 1625; microwave aerial testing at reduced range, 3643
- and P. Grusauskas, aperture phase errors in microwave reflectors, 332
- Cherepnev, A. A.**, state of Cu activator in ZnS phosphors, 134
- Chernish, G. C.**, life-test results on Se rectifiers, 3540
- Chernosky, E. J.**, variations in geomagnetic activity, 2720
- Chernov, A. A.**, with others, resistance of metals at high current densities, 456
- Chernov, Yu. A.**, nonlinear distortion of reflex circuits, 3314
- Chernyakova, M. A.**, and A. F. Chudnovski, thermal characteristics of semiconductors, 1755
- Chevallier, A.**, and B. Prokimmer, isolating direct-current amplifiers, 3316
- Chick, D. R.**, and D. P. R. Petrie, e.s. particle accelerator, 1838
- Chih Chi Hsu.** See Hsu, Chih Chi.
- Chikazumi, S.**, and T. Oomura, magnetic anisotropy induced by annealing, 1459
- Chiplunkar, V. N.**, with others, electronic differential analyser, high-speed, 24, timing device and nonlinear units for, 2637
- Chiron, B.**, and P. M. Prache, complex susceptibility of Mg ferrites, 2137
- Chisholm, J. H.**, tropospheric propagation research and communications beyond horizon, 3185
- and others, tropospheric propagation beyond horizon, 238
- with others, ionospheric propagation at frequencies exceeding m.u.f., 245
- Chitoku, H.**, with others, photoelectric phenomena with copper phthalocyanine, 2428
- Chlavin, A.** See Clavin, A.
- Chocholle, R.**, calculation procedure for harmonic analysis, 3463
- Chodorow, M.**, and E. J. Nalos, design of high-power travelling-wave valves, 2570
- Choudhury, A. K.**, isograph root finder, 1315
- Christ, K.**, with others, microwave television radio relay, 2546
- Christensen, H. S.**, air navigational facilities, 433
- Christian, S. M.**, with others, cyclotron resonance in Ge-Si alloys, 1456
- Christiansen, W. N.**, and J. A. Warburton, distribution of radio brightness over sun, 1706
- Chrunev, M.**, with others, digital memory in barrier-grid storage tubes, 1262
- Chubb, T. A.**, with H. Friedman, solar X-ray emission and height of D layer during fade-out, 755
- with others, solar X-ray spectrum and density of upper atmosphere, 3375
- Chudnovski, A. F.**, use of semiconductors in investigating natural phenomena, 3501
- with M. A. Chernyakova, thermal characteristics of semiconductors, 1755
- Chynoweth, A. G.**, BaTiO₃, pyroelectric effect in, 1745, surface space-charge layers in, 3406; spontaneous polarization of GASH, 3403
- and K. G. McKay, photon emission from avalanche breakdown in Si, 3096
- Clabaugh, W. S.**, E. M. Swiggard and R. Gilchrist, BaTiO₃(C₂O₄)₂ · 4H₂O for BaTiO₃, 3399
- Clapp, R. G.**, with others, colour-television-receiver design, 1881; beam-indexing colour-television display system, 3893
- Clark, E. G.**, with others, colour-television-receiver design, 1881
- Clarke, C.**, with F. Horner, waveforms of atmospherics and location of thunderstorms, 122
- Clarke, E. N.**, water-vapour-induced current on Ge junctions, 807
- with R. L. Hopkins, thermal acceptors in Ge, 1765
- Clarke, G. M.**, with C. P. Allen, wavelength measurements on tape helices, 2284
- Clarke, W. W. H.**, cathode standing waves and valve stability, 1913
- and L. Jacob, anomalous emission in low-energy electron beams, 1177
- W. M. Searle and F. T. Vail, ferrite modulator using feedback, 3015
- Clarricoats, P. J. B.**, with J. Brown, waveguide components with nonreciprocal properties, 3666
- Clavier, P. A.**, with others, transverse-field travelling-wave valves, 1252
- Clavin, A.**, nonlinearity of propagation in ferrite media, 1384; aerial feed with equal E- and H-plane patterns, 2626
- Cleland, J. W.**, and J. H. Crawford, Jr, neutron bombardment of GaSb, 1770
- J. H. Crawford, Jr, and D. K. Holmes, effects of gamma radiation on Ge, 3438
- J. H. Crawford, Jr, and J. C. Pigg, neutron bombardment of p-type Ge, 468
- with others, magnetic susceptibility of Ge, 1451
- Clemence, G. M.**, definition of second of time, 1153; standards of time and frequency, 3823
- Clément, M.**, with others, rain echoes with 3-cm- λ radar with circular polarization, 763
- Clemmow, P. C.**, and R. F. Mullaly, dependence of refractive index on direction of wave normal, 755
- M. A. Johnson and K. Weekes, motion of cylindrical irregularity in ionized medium, 755
- Clogston, A. M.**, and others, line width in ferromagnetic resonance, 2033
- des Cloizeaux, J.**, with P. Aigrain, effective mass of electrons in InSb, 815
- Clot, J.**, with J. Lagasse, e.m. scanning systems for c.r.o., 216
- Clothier, W. K.**, RC networks with single-component frequency control, 2661; switch-dial potential divider, 3487
- and F. C. Hawes, differential amplifier for low-frequency bridges, 3150
- Coale, F. S.**, with S. B. Cohn, directional channel-separation filters, 3297
- Coales, J. F.**, and A. R. M. Noton, on-off servomechanism, 3222
- with J. F. Barrett, analysis of nonlinear control systems, 2498
- Coates, H. N.**, electronic machine for particle analysis, 3176
- Coche, A.**, subtracting counter using dekatrons, 1337
- Cocking, W. T.**, television sync-pulse spectrum, 579; transistor operating conditions, 1344; new rejector circuit, 1993; television picture quality, 2898; Janet communication system, 3533
- Cockroft, H. S.**, and J. R. Pickin, klystrons for high-power c.w. operation, 1588
- Codefupl, R.**, spectral density of cross-modulation noise, 2883
- Coe, R. F.**, with others, injection phenomena in proton synchrotron, 2860
- Coen, E.**, with others, electric constants of thin films, 2418; modulation of conductivity by surface charges in metals, 2421
- Coffeen, W. W.**, antimonates as additives to BaTiO₃ bodies, 3815
- Coffey, W. N.**, measuring junction transistors, 1483
- Cohen, H.**, and G. Handelman, vibrations of plate with added mass, 2930
- Cohen, M.**, with others, infrared absorption of InSb, 2119
- Cohen, M. H.**, and F. Keffer, dipolar ferromagnetism at 0°K, 397
- Cohn, S. B.**, and F. S. Coale, directional channel-separation filters, 3297
- Colani, C.**, microwave discriminator, 2007
- Colas, M.**, stabilidyne, 2644
- Coleman, D. R.**, D. Allanson and B. A. Horlock, underwater television camera, 1226
- Coleman, P. D.**, and M. D. Sirkis, harmodotron for producing mm- λ and sub-mm- λ waves, 1000
- Coles, B. R.**, Hall-effect measurements on alloys, 2457
- Colin, C.**, study of air layer between diaphragm and electrode, 1270
- Colin, R. I.**, and S. H. Dodginton, principles of Tacan, 3386
- Colin, Y.**, with others, lattice defects and absorption of e.m. radiation by Cu₂O, 2446
- Collette, G.**, and R. Labrousse, f.m. radio altimeter, 3069
- Collin, R. E.**, optimum transmission-line matching section, 1953, (D)3278; reflection at slotted dielectric interface, 3652
- and J. Brown, equivalent circuit of asymmetrical waveguide junction, 2290; $\lambda/4$ matching layers for dielectric surfaces, 2293
- Collins, H. W.**, high-frequency operation of magnetic amplifiers, 2674
- Collins, R. J.**, with others, infrared absorption in n-type Ge, 2110
- Collongues, R.**, properties of lithium ferrite, 1118
- Colten, R. B.**, noncontacting gauges for nonferrous metals, 1835
- Combe, R.**, and T. Frelot, production of mm waves by undulator, 1034
- Combrisson, J.**, A. Honig and C. H. Townes, microwave application of electron spin resonance, 3032
- with A. Honig, paramagnetic resonance in As-doped Si, 3425
- Cones, H. N.**, with J. H. Park, breakdown of air in nonuniform field, 3024
- Confalone, J. L.**, and W. R. Rambo, radar a.f.c. system uses mechanical tuning, 2075
- Conley, P.**, continuous-tone underwater reverberation, 644
- Conn, G. K. T.**, with J. R. Beattie, surface resistance of metals at infrared frequencies, 1076
- Connor, F. R.**, ultra-high-speed oscillograph, 1824
- Connor, W. S.**, with others, velocity of light from molecular constants of CO, 69
- Conrad, E. E.**, and others, measurement of complex permeability and permittivity, 2845
- Conte, R.**, balance for measurement of magnetization, 3144
- Conwell, E. M.**, Hall effect and density of states in Ge, 470
- Cook, A. F.**, with G. S. Hawkins, recombination as source of light from meteor trains, 3362
- Cook, F. W.**, synthetic radar trainer, 3745
- Cook, J. S.**, and R. J. Meakins, dielectric absorption in pinacol hydrate, 1475
- R. Kompfner and C. F. Quate, coupled helices, 1612
- Cook, R. K.**, and J. H. Wasilk, anelasticity and dielectric loss of quartz, 3811
- and others, measurement of correlation coefficients in reverberant sound fields, 1284
- with R. V. Waterhouse, recording sound transmission loss of walls, 655
- Cook, W. R.**, BaTiO₃ ceramics, 2413
- Cooke, J. C.**, Tranter's dual-integral-equations problem, 3465
- Coomes, E. A.**, with G. A. Haas, Schottky effect for SrO films on Mo, 1261
- Cooper, F. S.**, with others, acoustic loci and transitional cues for consonants, 9
- Copi, I. M.**, with A. W. Burks, logical design of computer, 2965
- Coppola, P. P.**, and R. C. Hughes, pressed dispenser cathode, 1916
- Coquillion, J.**, polychloronaphthalene-impregnated-paper capacitors, 2980
- Corey, V. B.**, analogue computer, 988
- Corfield, D. N.**, crystal-controlled f.m. receiver, 2880
- Corliss, L. M.**, with J. M. Hastings, antiferromagnetic transition in Zn ferrite, 3800
- Corsepius, M.**, and K. Vogt, observations with TOM equipment at Frankfurt, 2533

- Costa de Beauregard, O.**, diffraction by plane aperture, 1669
- Coste, J.**, and J. L. Delcroix, irrotational electron beams, 1902; plasma oscillations in magnetron, 1903
- Cottingham, J. G.**, high-voltage attenuator, 694
- Cottini, C.**, with others, high-sensitivity pulse trigger circuit, 1336
- Coughanour, L. W.**, and others, dielectric properties in system MgO-CaO-SnO₂-TiO₂, 191
- with R. S. Roth, phase equilibrium relations in systems titanania-niobia and zirconia-niobia, 844
- Court, G. W. G.**, determination of reflection coefficient of sea for radar-coverage calculation, 438; microwave interferometer, 533; d.c.-coupled circuit using voltage-stabilizing valves, 692; ionospheric wind determination, 1418; microwave vehicle-speed indicator, 1732
- and E. S. Gillilan, determination of ionospheric winds, 2388
- and C. I. C. Scollay, saturable-reactor frequency divider, 359
- Couture, L.**, with others, optical spectrum of piezoelectric crystals, 1063
- Cowan, E. W.**, travelling-glow-discharge counter tube, 1265
- Cox, D. R.**, analysis of non-Markovian stochastic processes, 196
- Cox, R. J.**, and J. Walker, control of nuclear reactors, 3838
- Cox, W. F.**, with A. Nemet, intensification of X-ray image, 2510
- Cragg, B. G.**, electronic magnetometer, 852
- Craggs, J. D.**, and C. A. McDowell, ionization by electron impact, 2019
- Crain, C. M.**, airborne microwave refractometer measurements, 108
- Cranberg, L.**, with others, measurement of μ ms time intervals, 2835
- Crandell, P. A.**, turnstile polarizer for rain cancellation, 1729
- Crary, J. H.**, R. A. Hellweg and R. F. Chase, Stanford-Seattle whistler observations, 2392
- with others, the 'nose' whistler, 2393
- Crasemann, B.**, D. E. Rehfsuss and H. T. Easterday, disintegration of Ge⁶⁸, 3784
- Craven, G.**, disk-seal triode amplifiers, 3007
- and L. Lewin, microwave filters with $\lambda/4$ couplings, 1645
- Crawford, A. B.**, and D. C. Hogg, atmospheric attenuation at mm λ , 3862
- Crawford, A. E.**, Ultrasonic Engineering, (B)890
- Crawford, J. H., Jr.**, H. C. Schweinler and D. K. Stevens, magnetic indications of electronic structure in Ge, 472; hydrogen in Ge and Si, 3776
- with J. W. Cleland, neutron bombardment of GaSb, 1770
- with D. K. Stevens, magnetic susceptibility of InSb, 163
- with others, neutron bombardment of p -type Ge, 468; magnetic susceptibility of Ge, 1451; effects of gamma radiation on Ge, 3438
- Creamer, E. M.**, with others, beam-indexing colour-television display system, 3893
- Creamer, R. H.**, measurement of resistivity of Si, 3138
- Čremošnik, G.**, transients in simple resonator circuit, 2329
- Crevelling, C. J.**, reliability of electronic equipment, 2267
- Crewe, A. V.**, with others, extraction of beam from Liverpool synchrocyclotron, 873
- Crombie, D. D.**, measurement of arrival angle of 'whistlers', 430; low-frequency high-pass RC filters, 2663
- with others, frequency variations in New Zealand transmissions from GBR, 1482
- Crompton, R. W.**, J. Dutton and S. C. Haydon, pre-breakdown ionization currents in hydrogen, 1023
- Crony, J.**, clutter on radar displays, 2076
- Cross, L. E.**, ferroelectricity in pseudo-cubic dielectrics, 1744
- Crowe, R. W.**, electric breakdown of liquid hydrocarbons, 2022
- J. K. Bragg and J. C. Devins, first Townsend coefficient of molecular gases, 395
- Crowell, C. R.**, theoretical basis for measuring saturation emission of cathodes, 1259; space-charge-limited characteristics of diodes, 1917
- Cullen, A. L.**, and J. C. Parr, perturbation method for measuring microwave fields, 519
- Cullwick, E. G.**, e.m. momentum in current circuit, 2363
- Cummack, C. H.**, with G. A. M. King, electron distribution in ionosphere, 2722
- Cumming, H. W.**, xenon arc discharge lamps, 2238
- Cumming, W. A.**, endfire array for v.h.f. and u.h.f., 1308
- Cuneo, J. V.**, with A. I. Talkin, cascaded distributed amplifiers, 361
- Curie, D.**, with M. Curie, problems in crystal luminescence, 132
- Curie, M.**, and D. Curie, problems in crystal luminescence, 132
- Currie, B. W.**, auroral heights over Canada, 1723
- and J. T. Weaver, vertical extent of auroral arcs and bands, 1420
- Currie, M. R.**, and J. R. Whinnery, cascade backward-wave amplifier, 624
- Cusano, D. A.**, with F. J. Studer, transparent phosphor coatings, 444
- Cutler, C. C.**, spurious modulation of electron beams, 1256
- Cutler, M.**, forward characteristics of Ge point-contact rectifiers, 291
- Cutteridge, O. P. D.**, transient response calculation, 689
- Cutting, A. B.**, with others, diffusion cathode, 1258
- Czajkowski, Z.**, electronic methods of analogue multiplication, 2967
- Czyżewski, O.**, J. de Mezer and A. Strzalkowski, solar radio radiation during eclipse, 3363
- van Daatselaar, C. J.**, ionospheric absorption observations at K.N.M.I., 3054
- Dabbs, J. W. T.**, with others, crystalline fields and antiferromagnetic transitions, 1370
- Dacey, G. C.**, and I. M. Ross, field-effect transistor, 1240
- Dadda, L.**, with F. Amman, design of pole faces for circular particle accelerators, 2503
- Dadson, R. S.**, with D. W. Robinson, re-determination of equal-loudness relations, 3271
- Dahlke, W.**, transformation rules for noisy quadrupoles, 688
- with H. Rothe, theory of noisy fourpoles, 2665
- Dalton, R. H.**, solder glass sealing, 3462
- Daly, N. R.**, and K. G. Emeléus, initiation of hot-cathode discharges, 951
- with K. G. Emeléus, ion oscillations in cathode potential minimum, 2020
- Damon, R. W.**, magnetically controlled directional coupler, 667
- Danan, H.**, law of approach to saturation for Fe-Si single crystal, 2129
- Danforth, W. E.**, and J. H. Bodine, polarization in ThO₂ crystals, 2419
- Daniel, E.**, with others, lattice defects and absorption of e.m. radiation by Cu₂O, 2446
- Daniel, E. D.**, and P. E. Axon, absolute measurements in magnetic recording, 318
- Daniel, F. T.**, with P. L. Rice, transmission loss vs distance and aerial height, 1531
- Daniels, W. R.**, time lag in photoconductors, 3078
- Danielson, W. E.**, J. L. Rosenfeld and J. A. Saloom, beam formation with Pierce-type guns, 2581
- Danner, H. R.**, and R. Pepinsky, specific-heat anomaly of Cd₂Nb₂O₇, 449
- with others, neutron analysis of tetragonal BaTiO₃, 1072
- Darbyshire, J. A.**, electron gun of c.r. tube, 950
- Darmois, G.**, resistivity of thin films, 3762
- Darner, C. L.**, and R. J. Bobber, ultrasonic shutter, 645
- Das, J.**, pulse-slope modulation, characteristics of, 561, noise characteristics of, 1205
- Das, J. N.**, with others, PbS point-contact rectifiers, 2560
- Das, P. N.**, saturable reactors in magnetic amplifiers, 3320
- Das Gupta, M. K.**, with R. C. Jennison, angular diameter of radio sources, 1700
- Dash, W. G.**, and R. Newman, optical absorption in Ge and Si, 465
- Dasher, B. J.**, with K. L. Su, approximation problem for RC low-pass filters, 2993
- Datta, S.**, collision frequency in F region over Calcutta, 1711
- with others, ionosphere during solar eclipse, 2732
- Dauksher, W. J.**, stable oscillator for S-band radar, 3679
- Dauphin, M. A.**, testing components and valves, 2840
- Dauphinee, T. M.**, and E. Mooser, measuring resistivity and Hall coefficient of semiconductors, 201
- Davids, N.**, and R. W. Parkinson, wave solutions for critical coupling in ionosphere, 1192
- Davidson, D.**, and A. J. Poté, over-horizon communications links, 910
- Davidson, G. M.**, and M. Pavalow, potentiometer tachometer, 3841
- Davidson, J. A. B.**, facsimile transmission of weather charts, 2190
- Davidson, J. J.**, high-gain transistor amplifier, 1346
- Davidson, P. M.**, growth of current between parallel plates, 388
- Davie, O. H.**, c.r.o. beam-brightening device, (D)3491
- Davies, B. F.**, wide-band linear r.f. amplifier, 3317
- Davies, D. L.**, fast-acting phase indicator, 3835
- Davies, E. M.**, with others, printed resistors, 35
- Davies, H.**, Poisson's partial difference equation, 1019
- Davies, J. G.**, and A. C. B. Lovell, Giacobinid meteor stream, 410
- Davies, K.**, with W. J. G. Beynon, vertical-incidence ionospheric absorption at 2 Mc/s, 755
- with others, radio observations of ionosphere at oblique incidence, 1850
- Davies, S. M.**, calibration of vibration pickups, 3500
- Davis, C. M.**, and S. F. Ferebee, magnetostrictive properties of alfenol, 2825
- Davis, D. D.**, circuits for recurrent-surge oscillography, 1165
- Davis, H. B.**, with R. A. Meyers, triangular-wave analogue multiplier, 3287
- Davis, J. L.**, with others, ferromagnetic resonance in Mg-Mn-Al ferrite, 491
- Davis, L., Jr.**, interplanetary magnetic fields and cosmic rays, 1699; fluid self-excited dynamo, 3348
- with others, surface states on Si and Ge surfaces, 2434
- Davis, M.**, and R. F. Lever, crystal growth of Ge from germane, 3777
- A. Calverley and R. F. Lever, zone melting by electron bombardment, 2147
- Davis, P. G.**, phase-controlled oscillator, 1651
- Davis, R. E.**, with C. Goldberg, magnetoresistance of n -type Ge, 3783
- Davy, N.**, with H. J. Peake, field of cylindrical trough with plane conductor, 1018
- Daw, A. N.**, transistors in parallel, 1662
- Day, J. R.**, beyond-horizon signals extend communications, 265
- Daymond, S. D.**, vibrating systems with elliptic boundaries, 961
- Deal, O. E.**, with R. E. Holzer, low-a.f. e.m. signals of natural origin, 2070
- Deam, A. P.**, and B. M. Fannin, phase-difference variations in 9350-Mc/s signals at spaced aerials, 234
- Dean, S. K.**, and D. F. Nettell, digital potentiometer, 1314
- Deavenport, J. E.**, with others, transistor pulse generators, 358; transistor generator simulates radar target, 2496
- De Castro, E.**, response of nonlinear circuits to oscillations modulated in amplitude and frequency, 2879
- Decker, R. W.**, and D. W. Stebbins, work functions of La, Pr and Nd borides, 167
- DeClaris, N.**, existence theorem for driving-point impedance function, 3665
- Deeg, E.**, and O. Huber, dm- λ dielectric behaviour of clays, 450
- DeFaymoreau, E.**, determination of Tacan accuracy, 3386
- DeGrasse, E. W.**, and G. Wade, electron-beam noisiness for field-emission cathode, 3582
- Dehn, R.**, electron trajectories in coaxial diodes, 948; measurement of rapid fluctuations of temperature, 3258

- Dehors, R.**, and L. Garde, observing hysteresis cycles with Iliovici permeameter, 2164
- Deigen, M. F.**, bipolar diffusion in semiconductors for spherical symmetry, 2097
- DeLange, O. E.**, regeneration of binary microwave pulses, 1655
- Delano, R. H.**, and I. Pfeffer, effect of a.g.c. on radar tracking noise, 2747
- Delattre, P. C.**, A. M. Liberman and F. S. Cooper, acoustic loci and transitional cues for consonants, 9
- Delcber, J.**, and others, diffusion pump using freon 12, 3393
- Delcroix, J. L.**, with J. Coste, irrotational electron beams, 1902; plasma oscillations in magnetron, 1903
- Della Pergola, G.**, conductivity and Hall effect in semiconductors, 2092
- and D. Sette, action of etchants on Ge, 2106; apparatus for measurements on semiconductors, 3444
- Dellinger, J. H.**, cooperation in radio research by U.R.S.I. and I.R.E., 3264
- Delobeauf, F.**, and K. Suchy, ionospheric absorption at Dakar, 3513
- Deloffre, L.**, E. Pierre and J. Roig, photodiode with alternating magnetic field, 1895
- DeLong, V. R.**, automatic tuning for high-power transmitter, 3238
- Delorme, C.**, influence of substitutions in Cu ferrite and chromite, 1120
- Demczynski, S.**, correlation between decay time and amplitude response, 2328
- Dement'ev, B. P.**, with A. R. Shul'man, secondary emission from alkali halide crystals, 3695
- Dement'ev, E. P.**, noise in u.h.f. amplifiers, 62
- Demeshin, V. P.**, and others, Russian bibliography on telemetering, 869
- Dempsey, J.**, with others, oxide-impregnated Ni-matrix cathode, 626
- Denes, P.**, effect of duration on perception of voicing, 8
- Denisov, N. G.**, interaction of ordinary and extraordinary waves in ionosphere, 2196
- Denman, H.**, with B. Podolsky, generalized macroscopic electrodynamic equations, 2028
- Denton, J. J.**, with L. Hartshorn, calibration of inductance standards, 3134
- Déportes, C.**, with M. Dodero, preparation of alkali ferrites, nickelites and cobaltites, 3461
- Deresiewicz, H.**, with R. D. Mindlin, vibrations of crystal plates, 1322
- De Socio, M.**, imperfectly conducting waveguides, 3634
- Destriau, G.**, electroluminescence, brightness waves in, 1068, reinforcement of, by rotation of crystals, 709
- and H. F. Ivey, electroluminescence, 780
- and others, effect of electric fields on X-ray-excited phosphors, 2081
- Destriau, M.**, with others, effect of electric fields on X-ray-excited phosphors, 2081
- Desvignes, F.**, with G. A. Boutry, photodiodes and phototransistors as infrared detectors, 935
- Deubner, A.**, and K. Rambke, conductivity of thin Ag films, 3763
- Deuth, A. F.**, and others, multipath simulator tests communications, 3191
- Deutsch, K. H.**, public mobile radiotelephone service, 1551
- DeVaux, L. H.**, and F. A. Pizzarello, elastic constants of InSb, 2802
- Devenny, C. F., Jr.**, and L. G. Thompson, ferromagnetic computer cores, 497
- Devenport, M. H.**, with others, radio observations on 23rd February 1956, 2717
- Devins, J. C.**, with others, first Townsend coefficient of molecular gases, 395
- Devons, S.**, logarithmic notation, 1665
- DeVore, H. B.**, spectral distribution of photoconductivity, 2753
- DeWitt, J. H., Jr.**, G. A. Reynolds and L. E. Rawls, experimental on-channel satellite booster system, 2553
- Dexter, R. N.**, and B. Lax, cyclotron absorption in Bi, 1471
- Diamond, F. A.**, Gozzini and T. Kahan, interaction of cm waves with plasma, 1691
- Diamond, H.**, with others, nonlinear d.c.-tuned capacitors, 3663
- Diaz, J. B.**, with G. Birkhoff, nonlinear network problems, 2326
- Dicke, R. H.**, and R. H. Romer, pulse techniques in microwave spectroscopy, 1037
- with R. H. Romer, technique for microwave spectroscopy, 92
- Dickinson, A. H.**, vertical radiation and tropical broadcasting, 3536
- Diemer, G.**, and W. Hoogenstraeten, hole mobility in CdS, 3791
- H. A. Klansens and J. G. van Santen, solid-state image intensifiers, 1897
- Dieminger, W.**, s.w. echoes from lower ionosphere, 755
- K. H. Geisweid and H. G. Möller, echo sounding of ionosphere at oblique incidence, 1414
- Dieterle, W.**, acetylated paper as insulating material, 1144
- van Dijk, J. M. F. A.**, N. Schimmel and E. Goldbohm, shore-based radio aids, 1055; ramark beacon for use with marine radars, 1056
- Dillenburger, W.**, influence of optical system in television pickup, 596; black-level control in television, 1880
- and J. Wolf, equipment for single photographs of television pictures, 586
- Dillon, I. G.**, with others, mathematics of zone melting, 1141
- Dillon, J. F., Jr.**, S. Geschwind and V. Jaccarino, ferromagnetic resonance in Mn ferrite, 1134
- Dilworth, R. A.**, interference with television reception, 2899
- Di Marco, A.**, linear 15-kW amplifier, 3559
- Dinger, H. E.**, with M. G. Morgan, observations of whistling atmospherics, 1724
- Dingle, R. B.**, scattering of electrons and holes in semiconductors, 149; infrared absorption in semiconductors, 794; comparison equations in solution of differential equations, 2831
- Dion, A.**, with others, diffraction of microwaves, 2699
- Ditrick, N. H.**, with C. W. Mueller, planar alloy junctions for Ge transistors, 2562
- Ditto, S. J.**, with others, 3-min- λ radiation from sun, 740
- Ditzenberger, J. A.**, with C. S. Fuller, diffusion of donors and acceptors in Si, 3095
- Divoire, E.**, statistical characteristics of noise, 557
- Dmitrieva, M. M.**, with G. S. Solntsev, two-electrode h.f. discharge, 2689
- Dobesch, H.**, transients in filter amplifiers, 2992
- Doctor, N. J.**, with others, measurement of complex permeability and permittivity, 2845
- Dodero, M.**, and C. Déportes, preparation of alkali ferrites, nickelites and cobaltites, 3461
- Dodington, S. H.**, airborne Tacan equipment AN/ARN-21, 3386; quartz-crystal control at 1 kMc/s, 3386
- with R. I. Colin, principles of Tacan, 3386
- Dodson, G. C.**, with others, optimum core shape for magnetic amplifiers, 340
- Doehler, O.**, with P. Guénard, E- and C-type travelling-wave devices, 1590
- with others, carnatron wide-band oscillator, 620
- Dolansky, L. O.**, electronically controlled audio filters, 352
- Dolder, K. T.**, and O. Klemperer, space-charge effects in electron-optical systems, 1363; h.f. oscillations in space charge of electron emission systems, 3581
- Doležal, V.**, and J. Kurzeil, Mikusiński's operational calculus, 1800
- Doll, R.**, with W. Meissner, very-high-sensitivity screened galvanometer, 1160
- Dolman, W.**, and P. W. J. Gammon, radio and radar equipment in H.M. telegraph ships, 2539
- Dombrovskaya, T. N.**, with others, depiction of domains of ferromagnetic material, 1793
- Dominé, D.**, with others, analysis of impurities in gases, 3349
- Dominici, P.**, ionospheric characteristics, at Rome, 3047, during eclipse, 3732
- and F. Mariani, ionosphere F layer, 750
- Donovan, B.**, Hall effect in metals at high frequencies, 1039
- and N. H. March, h.f. conductivity in semiconductors, 3411
- van Doorn, C. Z.**, and D. de Nobel, luminescence and width of energy gap of CdTe, 3440
- Dorf, R. H.**, making photo-etched circuits, 1924
- Dormont, H.**, with others, photomultiplier tube for scintillation counting, 299
- Dorn, C. G.**, fast-rise pulse generator, 3291
- Dorrenbacher, C. J.**, with others, telemetering aerial system for supersonic aircraft, 2623
- Dorsey, S. E.**, timer codes oscillograph recordings, 3154
- van Dorsten, A. C.**, and J. B. Le Poole, Type-EM75kV electron microscope, 1841
- Doser, B. T.**, with W. C. Michels, rating-scale method for loudness measurements, 1292
- Douce, J. L.**, with others, analysis of nonlinear feedback systems, 3223
- Doyle, T. C.**, theory of network, 343
- Dranetz, A. L.**, with J. L. Upham, Jr, transistor modulator for airborne recording, 3181
- Draper, L.**, with M. J. Tucker, high-Q RC feedback filter, 49
- Dreher, J. J.**, with H. M. Moser, phonemic confusion vectors, 652; effects of training on listeners, 1290
- Drenick, R. F.**, with A. H. Benner, detection of pulsed signals in noise, 439
- Dresselhaus, G.**, spin-orbit coupling effects in zinc blende structures, 1139
- A. F. Kip and C. Kittel, plasma resonance in crystals, 1108
- and others, cyclotron resonance in Ge-Si alloys, 1456
- Dreyer, H. J.**, program-controlled computers, 1629
- Dreyfus, B.**, resonance field strength for system of magnetic sublattices, 185; equations of ferrimagnetic resonance, 1122
- with J. Paulevé, resonance of ferrites in circularly polarized field, 2455
- Drigo, A.**, study of ferromagnetism at Ferrara University, 2362
- Driver, C. E.**, transistor h.f. power supply, 3539
- Drokin, A. I.**, and V. L. Pyushenko, temperature dependence of magnetization of Ni, 2131
- Drougard, M. E.**, with others, polarization reversal in BaTiO₃, 3759
- Dubois, M.**, sensitive gaseous and liquid jets, 3603
- Duchamp, R.**, large-screen curve tracer, 861
- Duchesne, J.**, and A. Monfils, r.f. absorption spectra of piezoelectric solids, 455
- with A. Lallemand, star spectra by electronic photography, 3161
- Duckworth, H. E.**, with others, reliability of atomic masses in Cr-Ge region, 96
- Duclos, P.**, with others, preparation and effective masses for InSb, 3108
- Duffin, R. J.**, and E. Keitzer, formulae relating equivalent networks, 3664
- Dufour, C.**, spectral sensitivity of photo cathodes, 2246
- Dukes, J. M. C.**, investigation of strip transmission lines with electrolyte tank, 2283
- Dumas, G.**, gyromagnetic resonance in Penning gauge, 73
- Dumke, W. P.**, deformation potential theory for Ge, 2111
- with others, infrared absorption of InSb, 2119
- Dummer, G. W. A.**, high-temperature components, 3658
- Dumontet, P.**, with others, stationary random functions, 3467; square-law detection of background noise, 3524
- Duncan, B. J.**, and L. Swern, temperature behaviour of ferrites in waveguide, 2291
- Duncan, R. A.**, lunar variations in ionosphere, 2733
- Duncan, R. S.**, and H. A. Stone, Jr, application of ferrites to inductor design, 995

- Dungey, J. W.**, electrodynamics of outer atmosphere, 755; influence of geomagnetic field on turbulence in ionosphere, 2063; ambipolar diffusion in night-time F layer, 3729
- and A. J. Willson, viscosity in F region, 1410
- Dunkin, E. F.**, and D. L. Johnston, subminiature transformers and transducers, 1975
- Dunlap, W. C., Jr.**, amphoteric impurity action in Ge, 1763
- Dunn, D. A.**, and W. A. Harman, experimental transverse-current travelling-wave valve, 3253
- and others, transverse-current travelling-wave valve, 3252
- Dunn, F.**, F. J. Fry and W. J. Fry, characteristics of resonant-frequency crystal systems, 2601
- with W. J. Fry, ultrasonic irradiation of nervous system, 2178
- Dunsmuir, R.**, with others, resonant-cavity method for measuring resistivity, 2158
- Durana, V.**, with R. Bechmann, temperature variation of quartz resonators, 1639
- Durand, E.**, theory of magnetic masses, 81; transformation of integral and application to magnetostatics, 82; magnetic systems associated with permanent currents, 1682; expression for scalar potential of line current, 1683; potential due to charged disk, 2016; equations of non-conservative electromagnetism, 2694
- Durandeau, P.**, magnetic electron lenses, general expressions and curves for, 2506, construction of, 3169
- Durieux, C. W.**, and T. A. Prugh, microphonism due to transistor leads, 3246
- Durkee, A. L.**, with others, propagation test at 505 Mc/s and 4090 Mc/s on beyond-horizon paths, 234
- Durrant, N. F.**, measurement of minority carrier lifetimes, 147
- Dütsch, H. U.**, atmospheric ozone as air-stream indicator, 2047
- Dutton, J.**, with others, pre-breakdown ionization currents in hydrogen, 1023
- Dyce, R. B.**, auroral echoes observed north of auroral zone, 429; v.h.f. auroral and E_s propagation, 1533
- Dyer, H. B.**, and P. T. Wedepohl, electrical measurements on type-11b diamonds, 2785
- Dyke, W. P.**, and J. P. Barbour, electron projection microscopy, 2863
- and others, temperature-and-field emission from tungsten, 392
- with others, electron emission from clean tungsten, 1912
- Dyson, F. J.**, thermodynamic behaviour of ferromagnet, 3696
- Dziergwa, H.**, and H. Lange, luminescence of calcium silicate (Mn, Pb) and zinc-beryllium silicate (Mn), 136
- and H. Panke, yellow luminescence due to titanium in magnesium silicate containing fluoride, 1066
- Dzierzynski, O. E.**, measurement of wow and flutter, 13; simplified band-111 converter, 1564, 2236; slide-back valve voltmeter, 3486
- Eames, A. R.**, with L. R. Blake, transistor frequency meters, 3494
- Earnshaw, J. B.**, diode pump integrator, 1007
- Easter, B.**, band-pass characteristics of low asymmetry, 1992
- Easterday, H. T.**, with others, disintegration of Ge⁶⁸, 3784
- Eastwood, E.**, T. R. Blakemore and B. J. Witt, coherent M.T.I. radar on 50 cm, 3387
- Ebers, J. J.**, alloyed-junction transistor development, 2242
- with S. L. Miller, alloyed-junction avalanche transistors, 293
- Ebert, W.**, receiving side of broadcast transmission and a.f. bandwidth, 3881
- Echizenya, Y.**, S. Katano and Y. Ogata, F₂-layer multiple reflections, 894
- Eckart, F.**, dark current of secondary-electron multipliers, 930; conductivity measurements on Se, 2782
- and A. Schmidt, Se rectifiers with various impurities, 271
- Ecker, G.**, statistical description of assemblies with collective interaction, 384
- Eckert, O.**, E. Weides and K. Wallenfang, quality of ferrites for computers, 1629
- Eckess, W. S.**, J. E. Deavenport and K. I. Sherman, transistor pulse generators, 358; transistor generator simulates radar target, 2496
- Economos, G.**, magnetic ceramics, ferrite preparation, 192
- Edefman, S.**, E. Jones and E. R. Smith, developments in vibration measurement, 225
- with others, measurement of correlation coefficients in reverberant sound fields, 1284
- Edmond, J. T.**, with R. Barrie, study of conduction band of InSb, 145
- Edwards, A. G.**, effect of atmospherics on tuned circuits, 1538
- Edwards, D. B. G.**, digital computer techniques, 2971
- Edwards, H. D.**, and others, balloon-borne system for tracking sun, 3844
- Edwards, L. C.**, with others, ionospheric scatter techniques, 3185
- Edwards, S., Jr.**, with M. A. Melvin, theory of vibrations, 2597
- Edwards, W. D.**, frequency-stable transistor audio oscillator, 1335
- Egedal, J.**, and N. Ambolt, effect on geomagnetism of solar eclipse, 107
- Egerton, L.**, and S. E. Koonce, effect of firing cycle on BaTiO₃ ceramics, 1434
- Eggleston, F. K.**, with others, high-temperature TiO₂ rectifiers, 1218
- Egidi, C.**, and F. Maggiori, parasitic radiations from television receivers, 2237
- with M. Boella, propagation time of standard time signals, 1190
- Ehler, A. W.**, and G. L. Weisser, ultraviolet absorption of atomic nitrogen, 2013
- Eichin, W.**, directional attenuator with delay line and ferrite element, 3300
- Eigler, J. H.**, with M. V. Sullivan, electrolytic-stream etching of Ge, 2797; metal hydrides as alloying agents on Si, 3618
- Elsner, I. Ya.**, properties of ferroelectric-salt crystals, 2770
- Ekstein, H.**, theory of remagnetization of tapes, 1125
- and N. Rostoker, quantum theory of fluctuations, 1350
- Eldin, J.**, with P. Bassole, utilization of valves on French long-distance lines, 2254
- Eldredge, E. E.**, with others, multiple-frequency-shift teletype systems, 564
- Eley, D. D.**, and G. D. Parfitt, semiconductivity of organic substances, 1457
- Ellett, A.**, with A. L. C. Webb, phonevision subscription television, 1223, 2547
- Elliott, J. F.**, S. Legvold and F. H. Spedding, magnetic properties of erbium, 1787
- Ellis, G. R.**, Z propagation hole in ionosphere, 2195; propagation of whistling atmospherics, 3058, through upper ionosphere, 3514
- with G. Reber, cosmic r.f. radiation near 1 Mc/s, 2369
- Ellis, S. G.**, dislocations in Ge, 466; etching at grain boundaries in Ge, 1446
- Ellison, M. A.**, and J. H. Reid, long-wave anomaly on 23rd February 1956, 2716
- Ellyett, C. D.**, and G. J. Fraser, influence of noise on radar meteor observations, 99
- and K. W. Roth, radar determination of meteor showers, 739
- El-Said, M. A. H.**, geophysical prospecting for water by means of e.m. interference, 1171, (D)3157
- Elsässer, H.**, and H. Siedentopf, height of emission of 5577 line of air-glow, 2738
- Elsasser, W. M.**, hydromagnetic dynamo theory, 3355
- Elsmore, B.**, and G. R. Whitfield, lunar occultation of radio star, 97
- Elvey, C. T.**, and others, distribution of auroras in Alaska, 1722
- Embleton, T. F. W.**, propagation of sound pulses, 2599; radiation force on spherical obstacle, 2936
- Emelús, K. G.**, oscillations in gas discharges, 3692
- and T. K. Allen, plasma-electron oscillations, 86
- and N. R. Daly, ion oscillations in cathode-potential minimum, 2020
- with N. R. Daly, initiation of hot-cathode discharges, 951
- with others, appearance of oscillating discharges, 633
- Emerson, W. H.**, A. G. Sands and M. V. McDowell, wide-band absorbing materials, 1470
- Emmens, H.**, with F. de Boer, sedimentation of fluorescent screens, 636
- Emslie, N. M.**, basic chassis, 336
- Enfield, A. W.**, with others, design of r.f. permeameter, 3482
- Enge, H. A.**, half-wave rectifier circuits, 3888
- Englman, R.**, and E. H. Sondheiner, conductivity of anisotropic thin films, 3084
- Epelboin, I.**, and M. Erny, electrical anisotropy of Ga near fusion point, 837
- Epstein, D. W.**, P. Kaus and D. D. VanOrmer, improvements in colour kinescopes, 1567
- Epstein, E. S.**, C. Osterberg and A. Adel, atmospheric ozone as function of height, 3044
- Epstein, J.**, engineering aspects of u.h.f. booster installation, 2553
- with R. W. Klopfenstein, polarizable waveguide filter, 1330
- Epstein, P. S.**, propagation in gyromagnetic medium, 2031
- Epstein, B.**, instability of electron beams in magnetic field, 2568
- and G. Mourier, phase velocities in systems with periodic structure, 1907
- with others, carmatron wide-band oscillator, 620
- Eriksen, G.**, Ø. Hauge and E. Tandberg-Hanssen, r.f. observations of solar eclipse 30th June 1954, 3719
- Erkens, A.**, quartz-controlled oscillators, 2998
- Erny, M.**, with I. Epelboin, electrical anisotropy of Ga near fusion point, 837
- Erznkanyan, G. A.**, with V. A. Sanamyan, r.f. emission from sun during eclipse, 2370
- Eshleman, V. R.**, radio reflections from electron-ion clouds, 1191
- with others, meteor ionization trails, in extended-range v.h.f. propagation, 236, oblique reflections from, 3509
- Espe, W.**, mercury in vacuum technique, 3392
- Essen, L.**, new definition of unit of time, 200; standard-frequency transmissions, (D)514; MSF standard frequencies in terms of Cs resonance, 2839; atomic time and definition of second, 3469
- and J. V. L. Parry, atomic and astronomical time, 2471
- Ettinger, G. M.**, voltage-controlled attenuator, 50
- Euler, F. J.**, and P. A. Virbal, cineröntgenography, 3174
- Evans, D. M.**, measurements on Ge transistors, 2903
- Evans, J.**, with others, improvements in Type-21AXP22 colour kinescope, 3554
- Evans, S.**, with others, radio echoes from meteor trails, 2037
- Evans, W. E.**, and R. F. Lowe, quadriphase time-division multiplexing, 566
- Everett, D. H.**, general approach to hysteresis, 1351
- Ewald, A. W.**, with E. E. Kohnke, Hall effect in grey tin, 3795
- Exley, F.**, and R. E. Young, grounded-grid valve system, 2589
- Exterman, R.**, with others, nuclear magnetic resonance in weak fields, 1694
- Eyfrig, R.**, effect of geomagnetism on F₁ layer, 421
- Eyraud, L.**, with G. Mesnard, electromechanical properties of BaTiO₃ ceramics, 2083
- Fabrikov, V. A.**, Faraday effect in paraffin-ferrite mixtures, 493
- Fagot, J.**, problems of transmission over radio links, 2199
- Fain, V. M.**, velocity distribution of electrons in alternating electric and constant magnetic fields, 79; radiation from molecules in h.f. field, 3033
- with S. A. Zhevakin, nonlinear effects in ionosphere, 3856

- Fainberg, Ya. B., and N. A. Khizhnyak, anisotropic media, 979
- Fairbank, W. M., with others, superconductivity at mm λ , 1356
- Fairhurst, H. A., experimental colour receiver, 1882
- Fairweather, A., dielectric absorption in polar solutions, 1739
- Fan, H. Y., W. Spitzer and K. J. Collins, infrared absorption in *n*-type Ge, 2110
- with W. G. Spitzer, infrared absorption in InSb, 814
- Fanchenko, S. D., with E. K. Zavoiski, electron-optical chronography, 3502
- Fancourt, K. G., and J. K. Skwirzynski, simple frequency discriminator, 3325
- Fannin, B. M., with A. P. Deam, phase-difference variations in 9350-Mc/s signals at spaced aerials, 234
- Fano, R. M., thoughts on technical meetings, 1600
- Farago, P. S., and G. Marx, quantum effects in interaction between electrons and fields, 393
- Farber, R. J., with others, colour-television-receiver design, 1881
- Farbshtein, I. I., with A. R. Shul'man, scattering of electrons by Ni and Mo targets, 719
- Fark, H., transverse waves on strings, 2929
- Farmer, E. D., junction admittance between waveguides, 2286
- Farnsworth, H. E., with R. B. Allen, effect of ion bombardment of Ge on point-contact rectification, 3240
- Farrands, J. L., and G. F. Cawsey, microwave observations of detonation, 1833
- Farrar, E. N., and M. T. O'Dwyer, R/T for control of works transport, 570
- Fast, J. F., with G. W. Rathenau, initial permeabilities of sintered ferrites, 2136
- Fastert, H. W., radiation diagrams of ring arrays, 982
- Faudell, C. L., television studio lighting, 2239
- Fauve, R., multistable circuit with quinary cycle, 341
- Fedde, G. A., with others, status of 'apple' receiver circuits, 3893
- Feddersen, W. E., with others, localization of sound sources, 649
- Feidla, S., wide-band microwave radio links, 568
- Fedorov, F. I., theory of total reflection, 1375
- Fedorova, N. N., with N. A. Goryunova, isomorphism of compounds of type AB_3B_2 , 2096
- Fedorovich, V. N., measurement of acoustic impedance, 1942
- Fedotova, T. M., with others, ferroelectric properties of stannates, 3405
- Feher, G., R. C. Fletcher and E. A. Gere, spin resonance of impurity atoms in Si, 1760
- Fehér, K., amplitude distribution of plane surfaces, 2600
- Felk, K., directed sound, 646
- Feinberg, E. L., with S. G. Gershman, measurement of correlation coefficient, 1968
- Feinberg, R., and K. C. Burn, new h.v. low-current triodes, 2261
- with others, recording high-speed single-stroke transients, 1494
- Fejer, J. A., interaction of radio waves in ionosphere, 1521; tropospheric scatter propagation and transmission loss, 2870
- Fekhdikher, A., expression for powers of a matrix, 1326
- Feld, Ya. N., infinite equations linked with infinite periodic systems, 1955; incidence of e.m. waves at double infinite grids, 2696
- Feldheim, F. S., with others, punched cards control assembly system, 960
- Feldman, E. F., a.f. spectrum analyser, 1163
- Feldmann, W. L., with others, noise in Si *p-n*-junction photocells, 1900
- Feldtkeller, R., with E. Zwicker, loudness of steady noises, 1604
- Fenton, K. B., with others, effective geomagnetic equator, 3721
- Feofilov, P. P., with B. S. Neporent, 4th symposium on luminescence, 2679
- Ferebee, S. F., with C. M. Davis, magnetostrictive properties of alfenol, 2825
- Ferguson, W. F. C., with J. F. Hall, Jr, optical properties of CdS and ZnS, 1062
- Fernandez Huerta, A., synthesis of aerial arrays, 983
- Fernando, W. M. G., and H. E. M. Barlow, radial cylindrical surface waves, 2282
- Ferretti, L., and P. Veronesi, influence of magnetic field on h.f. gas discharge, 716
- Ferro, A., and G. Montalenti, influence of carbon in iron and iron alloys, 1463
- Fert, C., and B. Marty, use of cylindrical lens in reflection electron microscope, 1182
- Fesenko, E. G., with others, single crystals of Ba and Sr titanate solid solutions, 3757
- Feth, G. C., with L. A. Finzi, magnetic amplifiers in bistable operation, 1661
- Fetz, H., electron liberation by low-energy ions, 386
- Février, C., phase-bridge frequency meters, 2176
- Fialkow, A., and I. Gerst, impedance synthesis without minimization, 1987
- Fidecaro, G., and A. M. Wetherell, design of distributed amplifiers, 2670
- Fidrya, A. K., with others, conductivity of Bi_2O_3 , 3110
- Field, L. M., with others, transverse-current travelling-wave valve, 3252
- Fieschi, R., thermodynamic theory of galvanomagnetic and thermomagnetic phenomena, 1390
- Filipowsky, R., pulse communication systems, 261, 562, 1546; multi-channel system with automatically variable number of pulses, 1204
- Findlay, D. A., electronic controls for machine tools, 1502
- Fink, D. G., transistors versus vacuum tubes, 2244
- Finkle, M., with S. Shenfeld, storage-tube device simulates radar net, 2077
- Finzi, L. A., and G. C. Feth, magnetic amplifiers in bistable operation, 1661
- Firle, T. E., low-frequency spectrum analyser, 2855
- Firmin, J. C., and C. W. Oatley, effects of metal electrodes in electron-bombardment conductivity, 843
- Firsov, Yu. A., with G. E. Pikus, conference on theory of semiconductors, 3767
- Fischell, R. E., stress on magnetic laminations, 182
- Fischer, A., air safety service at Zürich, 1424
- Fischer, E. W., and H. Richter, structural changes in Ge films, 811
- Fischer, J., and H. Moser, approximate representation of magnetization curves, 3459
- Fitton, E. D., and R. E. Howland, line transmission circuits, 2614
- Fitzgerald, R. B., with others, objective and subjective observations on music rooms, 11
- Fix, H., with R. Theile, signal/noise ratio in television, 2897
- Flanagan, J. L., formant frequencies in continuous speech, 1944; bandwidth and channel capacity for speech, 3613
- Flanders, P. J., with others, ferromagnetism in noble-metal alloys containing Mn, 175
- Flaschen, S. S., and L. G. Van Uitert, low-contact-resistance electrode, 2124
- Fleischer, H., and H. Widerra, frequency-band recorder, 2175
- Fleming, L., capacitance transducer circuit, 228
- and W. W. Follin, subaudio oscillator tunes 0–50 c/s, 59
- Fletcher, G. C., magnetostriction constants for Ni, 1137
- Fletcher, N. H., self-bias cut-off effect in power transistors, 604
- Fletcher, R. C., W. A. Yager and F. R. Merritt, quantum effects in cyclotron resonance, 1093
- with others, spin resonance of impurity atoms in Si, 1760
- Florescu, N. A., ultimate vacuum in vapour pumps, 3074
- Flügge, S., Handbuch der Physik, Band 33: Korpuskularoptik, (B)3852
- Flynn, P. T. G., field-dependent conductivity and electrical breakdown, 72
- Fochs, P. D., energy gap of semiconductors from diffuse reflection spectra, 2101
- Folberth, O. G., mixed crystals of $Al^{III}B^V$ compounds, 2095
- and H. Weiss, preparation and properties of InP and GaAs, 3107
- Folkierski, A., input amplifier for pulse-height analyser, 3311
- Follin, W. W., with L. Fleming, subaudio oscillator tunes 0–50 c/s, 59
- Fomenko, L. A., magnetic spectra of Ni-Zn ferrites, 3120
- Foner, S., Hall effect, in permalloys, 487; of armco iron, 2819
- Forbush, S. E., variations in strength of wind system in dynamo mechanism, 2378
- and E. H. Vestine, sudden commencements of magnetic storms at Huancayo, 415
- Ford, L. H., with G. H. Rayner, effect of humidity on stability of inductance standards, 2472
- Ford, R. L., electrical analogues for heat exchangers, 1503
- Forman, R., properties of pore conductors, 630
- Forrat, F., with F. Bertaut, structure of rare-earth ferrites, 1790; perovskites composed of rare earths and transition elements, 2820
- Forrester, A. T., R. A. Gudmundsen and P. O. Johnson, photoelectric mixing of incoherent light, 710
- Forster, J. H., with L. E. Miller, accelerated aging with Li-doped transistors, 1242
- Forsyth, P. A., C. O. Hines and E. L. Vogan, variations in number of shower meteors detected by forward scattering, 1046
- with others, dependence of meteoric forward-scattering on aerial patterns, 1198
- Fortet, R., vectors, matrices and determinants, tensors, 1150
- Fortini, T., decreasing phase of last solar cycle, 1047
- Foster, K., parabolic-cylinder aerials, 1627
- Fougere, G. L., maximum power transfer in transistor amplifiers, 369
- Foulds, K. W. H., resonant-cavity measurements of permittivity of discharge, 80
- Fowler, C. A., Jr, and E. M. Fryer, magnetic domains in thin films of Ni-Fe, 1132
- Fowler, C. S., v.l.f. receiver with high selectivity, 3530
- with G. E. Ashwell, phase change of l.f. ground waves, 3857
- with others, phase of l.f. ground wave propagated across coastline, 3194
- Fox, L., Bessel Functions of Integer Orders and Large Arguments, (B) 199
- Francis, H. T., with D. R. Makar, self-balancing zero-resistance ammeter, 2168
- Frank, E., calculation of roots of equations, 2148
- Frankl, D. R., electroluminescence of ZnS crystals, 1432
- Franklin, E., and J. B. James, application of transistors to radiation monitors, 3175
- Franklin, P. J., with others, printed resistors, 35; measurement of complex permeability and permittivity, 2845
- Franz, W., and R. Galle, semi-asymptotic series for diffraction of plane wave, 1377
- Fraser, G. J., with C. D. Elyyett, influence of noise on radar meteor observations, 99
- Fraser, P. A., with M. Romanowski, primary winding of Campbell standard inductor, 1831
- Fraser, W., wide-range phase-shift oscillator, 2335
- Fraunberger, F., h.f. method for investigations of magnetic alloys, 1504
- Fray, S. J., with L. M. Roberts, theory for solid-backed bolometers, 2857
- Frazer, B. C., H. R. Danner and R. Pepinsky, neutron analysis of tetragonal $BaTiO_3$, 1072
- with others, diffraction study of $PbTiO_3$, 2771
- Frederikse, H. P. R., and R. F. Blunt, photoeffects in intermetallic compounds, 769
- and E. V. Mielczarek, thermoelectric power of InSb, 813

- with others, properties of Mg_2Sn , 1104
- Frei, E. H.**, with others, circuit element using magnetoresistive effect, 1319
- Frelot, T.**, with R. Combe, production of mm waves by undulator, 1034
- Frémont, C.**, with others, rain echoes with 3-cm-A radar with circular polarization, 763
- Freund, R. E.**, thermoluminescence measurements of ZnS:Mn films, 1069
- Frey, J.**, with others, ferrites with perminvar-type hysteresis loops, 489
- Friedel, J.**, ferromagnetism in transition metals, 1369
- Friedlander, F. G.**, and J. B. Keller, asymptotic expansions of solutions of $(p^2 + k^2)u = 0$, 398
- Friedman, H.**, and T. A. Chubb, solar X-ray emission and height of D layer during fade-out, 755
- with others, ionospheric F₂ region, 755; solar X-ray spectrum and density of upper atmosphere, 3375
- Friedman, N.**, and C. Macpherson, cardioid microphone, 970
- Friedman, T. B.**, with L. Katz, u.h.f. satellite transmitter-receiver, 2553
- Frisch, E.**, equivalent-circuit constants of high-Q resonators, 3476
- Fritts, E. C.**, 16-mm projector for television with partial storage, 1225
- Fritzsche, C.**, semiconductor properties of ZnAs₂, 2800
- Fritzsche, H.**, properties of Ge at low temperatures, 153
- and K. Lark-Horowitz, properties of p-type InSb at low temperatures, 160
- Friz, W.**, with W. Klein, gas-discharge tube for noise measurement, 3484
- Fröhlich, H.**, theory of secondary emission, 720
- Fröling, H. E.**, test-line technique in television, 587
- Frommhold, L.**, statistics of electron avalanches in uniform field, 3023
- Fromy, E.**, with others, recording r.f. interference, 3488
- Frood, D. G.**, and J. R. Wait, slot radiators in rectangular plates, 1309
- Fromme, K. D.**, refractive indices of water vapour etc. at 72 km/c, 1016
- Frost, H. B.**, cathode-interface impedance desimplified, 2584
- Fry, F. J.**, with others, characteristics of resonant-frequency crystal systems, 2601
- Fry, W. J.**, and F. Dunn, ultrasonic irradiation of nervous system, 2178
- with others, characteristics of resonant-frequency crystal systems, 2601
- Fryer, E. M.**, with C. A. Fowler, Jr, magnetic domains in thin films of Ni-Fe, 1132
- Fuchs, H.**, d.c. amplifier for slow analogue computer, 989
- Fucks, W.**, and others, starting of gas discharge in a.c. field, 3338
- Fujita, H.**, with Y. Nakata, eigenvalues of free plate, 962
- Fukatsu, M.**, with others, solar corona and geomagnetism, 2042
- Fukuoka, N.**, with others, magnetic and electric properties of MnTe, 2812
- Fukushima, M.**, with others, studies on diffracted waves from a mountain, 898
- Fuller, C. S.**, and J. A. Ditzenberger, diffusion of donors and acceptors in Si, 3095
- with H. Reiss, solubility of Li in B-doped Si, 2787
- with others, chemical interactions among defects in Ge and Si, 3092
- Funk, S.**, nonlinearity tolerances for television systems, 595
- Furlow, M. W.**, with R. C. Benoit, Jr, wide-aperture direction finders, 330
- Furth, H. P.**, and R. W. Wanic, production of high transient magnetic fields, 3030
- Fürth, R.**, analysis of star scintillations for investigating atmospheric disturbances, 755
- Furutso, K.**, propagation of e.m. waves across boundary, over flat earth, 541, 1848, over spherical earth, 2191; field strength in diffraction by spherical surface, 3186
- Fuse, S.**, and S. Soma, field intensity measuring, 2525
- Gabor, D.**, collective oscillations and characteristic electron-energy losses, 1678
- and G. D. Sims, magnetron theory, (D)1586
- with G. D. Sims, theory of pre-oscillating magnetron, 938
- Gabovich, M. D.**, space charge effect on beams of charged particles, 77
- Gait, J. J.**, with others, tridac analogue computer, 2300
- Gajewski, R.**, transients in waveguides, 1300
- Galkin, A. A.**, with others, resistance of superconducting tin at 7.3×10^{10} c/s, 1776
- Gallagher, P. B.**, with others, aspect-sensitive radio reflections from ionosphere, 1527
- Galle, R.**, with W. Franz, semiasymptotic series for diffraction of plane wave, 1377
- Gallet, R. M.**, aerodynamic mechanisms of fluctuations in ionized layers, 234
- Galman, H.**, expanded-scale voltmeter, 857
- Gal'perin, B. S.**, contact noise, 34
- Galt, J. K.**, with others, ferromagnetic resonance in Ni-Fe ferrites, 492; frequency dependence of magnetocrystalline anisotropy, 835
- Gamble, G. W.**, C. J. Godwin and F. S. Feldheim, punched cards control assembly system, 960
- Gammon, P. W. J.**, with W. Dolman, radio and radar equipment in H.M. telegraph ships, 2539
- Ganz, E.**, and K. Michel, climatic influences in development of electronic equipment, 3598
- Ganzhorn, K.**, with A. Krösa, transistors in computer technique, 1629
- Gaponov, A. V.**, thin aerials in cavity resonators, 1641
- Garde, L.**, with R. Dehors, observing hysteresis cycles with lliovici permeameter, 2164
- Garfunkel, M. P.**, with others, mm-wave absorption in superconducting Al, 2354
- Garlick, G. F. J.**, cathodoluminescence, 779; physics of scintillation counter, 886
- with A. Halperin, absorption spectrum of CdS, 774
- Garreta, O.**, 'punch-through' voltage of transistor, 925
- Garrett, C. G. B.**, physics of semiconductor surfaces, 3768
- and W. H. Brattain, theory of semiconductor surfaces, 146; surface breakdown of transistors, 2561
- with J. T. Law, surface properties of Ge, 3431
- Garton, C. G.**, with K. H. Stark, electric strength of irradiated polythene, 1146
- Gaschi, J.**, transistor equivalent circuits, 2904
- Gasiorowicz, S.**, M. Neuman and R. J. Riddell, Jr, dynamics of ionized media, 2361
- Gassmann, G.**, airborne ionospheric measurements, 2382
- Gasson, D. B.**, four-probe apparatus for measuring resistivity, 2476
- Gatti, E.**, with others, high-sensitivity pulse trigger circuit, 1336
- Gautier, P.**, relation between arbitrary field and field of revolution, 718; exploring coil for measuring magnetic field, 2486
- Gavilán, E.**, with others, plan for television in Spain, 2230
- Garwin, R. L.**, with others, spin-echo storage, 1038
- Gávrilyuk, V. M.**, with N. D. Morgulis, influence of adsorbed film on work function, 3027
- Gaynor, J.**, with others, e.s. charges in plastics, 2684
- Gea Sacasa, R.**, oblique incidence and sunspots, 2202
- Geballe, T. H.**, with F. J. Morin, conductivity and Seebeck effect in Ni ferrite, 173
- with others, Hall effect and conductivity of InSb, 1772
- Gebbie, H. A.**, and G. A. Vanasse, interferometric spectroscopy in far infrared, 3687
- Gebhard, J. W.**, with others, sensitivity to changes in interruption rate of white noise, 1943
- Gelsweld, K. H.**, with others, echo sounding of ionosphere at oblique incidence, 1414
- Geller, R.**, with others, diffusion pump using freon 12, 3393
- Geller, Z.**, and W. Low, amplification of 1-cm waves in He negative glow, 715
- Gel'mont, Z. Ya.**, with others, piezoelectric high-pass filter, 48
- Gemmel, F.**, with H. Lueg, dielectric constant of loss-free solid bodies, 210
- Gent, S. E.**, and D. J. S. Westwood, vision a.g.c. system, 281
- Gentner, R.**, with A. Leblond, semiconductor structure for h.f. oscillations, 1888
- George, R. W.**, electromechanical filters for 160 kc/s, 1002
- Gerber, T.**, comparative tests on relay contacts, 2310
- Gere, E. A.**, with others, spin resonance of impurity atoms in Si, 1760
- Gerks, I. H.**, spacing of terminals in u.h.f. link, 234
- Gerlach, L.**, with P. Levesque, metallography of ferrites, 3453
- Gerlich, D.**, with others, carrier-defect phenomena in Ge, 1096
- Gershberg, A. E.**, measurement of cathode temperature, 2916
- Gershman, B. N.**, and V. L. Ginzburg, influence of magnetic field on convective instability in ionosphere, 3371
- Gershman, S. G.**, and E. L. Feinberg, measurement of correlation coefficient, 1968
- Gerson, N. C.**, sporadic-E movements, 118
- Gerst, I.**, with A. Fialkow, impedance synthesis without minimization, 1987
- Gertsenshtein, M. E.**, theory of shot effect, 1581; fluctuations in electron gas, 1582
- Geschwind, S.**, with others, ferromagnetic resonance in Mn ferrite, 1134
- Getmantsev, G. G.**, K. S. Stankevich and V. S. Troitski, 91.6-cm radiation of deuterium in galaxy, 408
- Gevers, R.**, transport of injected electrons and holes, 1439
- Geyger, W. A.**, magnetic servo amplifier, 1660
- Ghandi, S. K.**, with others, transistor test equipment, 526
- Ghijzen, H. W.**, standardization of components, 32
- Ghosh, D. K.**, absorption of microwaves, in phenol etc., 1692, in substituted phenols, 2032
- Ghosh, M.**, F-region collision frequency over Calcutta, 2056
- Ghosh, S. N.**, charge transfer in upper atmosphere, 3365
- Giacchetto, L. J.**, variations of transistor α with emitter current, 294
- and J. O'Connell, variable-capacitance junction diode, 2559
- Giampletro, M.**, television standards in Uruguay, 2550
- Gianola, U. F.**, application of Wiedemann effect to magnetostrictive coupling, 350; photovoltaic noise in Si p-n junctions, 1899
- and D. B. James, ferromagnetic coupling between crossed coils, 3293
- Gibbons, J. J.**, solving coupled equations of plane wave propagation in ionosphere, 755; Lorentz invariant problem of motion of electric fluids, 1688
- Gibbons, M. D.**, with V. L. Stout, gettering by Ti, 1428
- Gibson, A. F.**, absorption of 39-kMc/s radiation in Ge, 3100
- Gibson, J.**, with O. M. Woodward, Jr, omniguide television aerial, 2297
- Gibson, W. G.**, with A. C. Schroeder, television vertical aperture compensation, 1885
- Gielessen, J.**, and K. H. v. Klitzing, Hall effect of InSb at high pressures, 3794
- Giger, A.**, critical-value problem relative to nonlinear differential equation, 3464
- Gigon, J.**, with G. Mayer, measurement of elastic constants using ultrasonics, 867
- Gilbert, M.**, visibility of noise as function of frequency, 1234
- Gilchrist, R.**, with others, BaTiO₃(C₂O₄)₂ · 4H₂O for BaTiO₃, 3399
- Gillflann, E. S.**, with G. W. G. Court, determination of ionospheric winds, 2388
- Gilfrich, H. P.**, destruction of phosphors by H⁺ ions, 3752
- Gill, P. S.**, with S. P. Puri, analysis of spuriousness of G-M tubes, 2511
- Gillespie, A. B.**, control and instrumentation of nuclear reactor, 3838
- Gillham, E. J.**, J. S. Preston and B. E. Williams, study of gold films, 836
- Gilson, R. B.**, with D. M. Leakey, ultralinear output transformers, 677

- Ginat, M.**, with others, eclipse of Crab nebula, 2711; multiple-aerial interferometer at Nançay, 3644
- Ginzburg, V. L.**, and V. P. Silin, conductivity and skin effect in metals, 711
- with B. N. Gershman, influence of magnetic field on convective instability in ionosphere, 3371
- Gitlin, S. A.**, delay line simulates radar targets, 3070
- Giua, E.**, differential amplifiers, 2671
- Givens, M. P.**, C. J. Koester and W. L. Goffe, X-ray absorption of Te and Se, 1440
- Gladwin, A. S.**, stability of valve generators, 54; constant-frequency oscillators, 697; stability criteria for systems with distributed parameters, 992; oscillator frequency stability, 3305
- Glaser, E. M.**, and H. Blassbalg, logarithmic voltage quantizer, 1008
- Glaser, W.**, error of magnetic lenses, 2862
- and G. Braun, wave-mechanics theory of electron-optical image formation, 707
- Glauberman, M. H.**, character recognition for business machines, 1316
- with R. C. Kelnor, magnetic shift-register correlator, 3286
- Gleissberg, W.**, scale of relative sunspot numbers, 3720
- Glen, J. W.**, irradiation effects in metals, 457
- Glicksman, M.**, magneto-resistance of Ge-Si alloys, 1455; semiconductor with two sets of spheroidal energy surfaces, 3786
- Glowatzki, E.**, catalogue of power-law and Tchebycheff filters, 351
- Gnanalingam, S.**, and K. Weekes, D-region echoes at 1.4 Mc/s, 755
- Gobrecht, H.**, D. Hahn and F. W. Seemann, brightness waves in luminescence of phosphors, 137
- Goddard, A., Jr.**, with others, balloon-borne system for tracking sun, 3844
- Godwin, C. J.**, with others, punched cards control assembly system, 960
- Goerlich, P.**, Die Anwendung der Photozellen, (B)2512
- Goetz, H.**, generation of ultrasonics by electrostriction, 310
- Goff, K. W.**, and D. M. A. Mercer, probe microphone analysis and testing, 1296
- Goffe, W. L.**, with others, X-ray absorption of Te and Se, 1440
- Gohlke, W.**, Einführung in die piezoelektrische Messtechnik, (B)1519
- Gold, L.**, Hall theory in *n*-type Ge, 155
- Gold, T.**, and D. R. Palmer, solar outburst, 23rd February 1956, 2715
- Goldberg, C.**, and R. E. Davis, magneto-resistance of *n*-type Ge, 3783
- Goldberg, P. A.**, e.m. phenomena of natural origin at 1-150 c/s, 3062
- Goldberger, A. K.**, with P. Palluel, O-type carcinotron, 1904
- Goldbohm, E.**, with others, shore-based radio aids, 1055; ramark beacon for use with marine radars, 1056
- Goldenberg, H.**, Laplace transformation, 1798
- Goldie, J. M.**, with others, *p-n-p-n* transistor switches, 3899
- Goldin, L. L.**, and D. G. Koskarev, synchrotron oscillations in strong-focusing accelerators, 1839
- Golding, J. F.**, signal generator in telecommunications, 2841
- Goldman, J. E.**, with H. M. A. Urquhart, magnetostrictive effects in antiferromagnetic haematite, 2816
- Goldman, R. B.**, with others, design and performance of e.s. loud-speaker, 1298
- Goldsman, Z. A.**, non-additivity in Se photocells, 2921
- Goldsmid, H. J.**, thermoelectric applications of semiconductors, 145; thermal conductivity of Bi₂Te₃, 2449
- Goldstein, L.**, with J. M. Anderson, interaction of e.m. waves in plasma, 1383; collision cross-section of He for slow electrons, 3351
- Goldstein, M.**, and E. R. Michalik, scattering of light by inhomogeneous solid, 1353
- Goldstein, S. J., Jr.**, comparison of radiometer circuits, 535
- Goldwater, D. L.**, effects of electrolysis in thorium emitter, 2587
- Golikova, O. I.**, with others, photoconductivity and luminescence of CdS(Cu), 3750
- Göllnitz, H.**, current partition in valves, 3589
- Golosman, B. S.**, regenerative amplifier with distributed amplification, 2002
- Gomon, G. O.**, with others, X-ray investigation of solid solutions of BaTiO₃-PbZrO₃, 1436
- Goncharov, K. V.**, and V. A. Krasil'nikov, thermal oscillations of piezoelectric crystals, 2770
- Good, I. J.**, terminology in information theory, 2530
- Good, R. H., Jr.**, with E. L. Murphy, thermionic and field emission, 3694
- Goodenough, J. B.**, role of covalence in perovskite-type manganites, 1115; domain patterns in BiMn and SiFe alloys, 3116
- Goodman, C. H. L.**, bond relationships in diamond-type semiconductors, 145
- Goodman, P.**, sensitive gold-leaf electro-scope, 1161
- Goodman, R. R.**, with J. M. Luttinger, cyclotron resonance of holes in Ge, 1092
- Goodman, T. P.**, measurement of correlation coefficients, 3827
- Goodrich, H. C.**, transistorized sync separator circuits, 1565
- Goodisman, R. F.**, design of broadcasting studios, 1295
- Goody, R. M.**, and W. T. Roach, distribution of ozone from emission spectra, 3726
- with C. D. Walshaw, investigation of ozone band in solar spectrum, 3725
- Göransson, K.**, and L. Hansson, subharmonic oscillations in nonlinear system, 2977
- Gordon, E. S.**, D. C. Maxwell, Jr. and N. E. Alexander, aerosoloscope counts particles in gas, 1836
- Gordon, J. F.**, variable gas-dielectric capacitor, 998
- Gordon, J. P.**, H. J. Zeiger and C. H. Townes, the maser, 403
- Gordon, W. E.**, simple picture of tropospheric scattering, 3185
- Gordon-Smith, G. W.**, with J. S. Preston, discontinuities in saturation curves of photocells, 609
- Gordy, W.**, and others, 3-mm- λ radiation from sun, 740
- with C. A. Burrus, mm and sub-mm λ spectroscopy, 2156
- with others, superconductivity at mm λ , 1356
- Gore, E. M.**, film pickup for TV, 280
- Gorelik, A. G.**, and V. A. Zverev, interaction of sound waves, 1939
- Gornyi, N. B.**, inelastic reflection of electrons, 3029; structure of surface of Cu₂O films, 3106
- Gorodetski, A. B.**, magnetic-amplifier circuits with internal feedback, 3012
- Gorter, E. W.**, properties of ferrites in connection with their chemistry, 830
- Gorton, H. C.**, T. S. Shilliday and F. K. Eggleston, high-temperature TiO₂ rectifiers, 1218
- Goryunova, N. A.**, and N. N. Fedorova, isomorphism of compounds of type AIII BV, 2096; ternary semiconductor systems, 3417
- and others, photoelectric properties of compounds with zinc-blende structure, 2779
- with B. T. Kolomiets, ternary semiconductor systems, 1751
- Gossard, E. E.**, with L. J. Anderson, prediction of oceanic duct propagation, 2876
- Gossick, B. R.**, transient behaviour of semiconductor rectifiers, 1236, of *p-n* junctions, 1574
- Gossiau, K.**, and W. Guber, high-slope multigrad valve and its applications, 3262
- and H. J. Harloff, characteristics of bi-stable multivibrators, 1006
- Gott, E.**, high-speed counter uses surface-barrier transistor, 1656
- Götze, S.**, with E. G. Schlosser, d.c. amplifier with asymmetrically earthed input, 2004
- Goubin, R.**, long-range dnu- λ links, 1197
- Gougeon, J.**, with K. Servant, birefringence of paper at 9.35 kMc/s, 3140
- Gould, J. E.**, and M. McCaig, production of anisotropy in permanent magnet, 828
- Gourash, F.**, low-level magnetic amplifier, 365
- Goussot, L.**, television equipment at R.T.F., 3556
- Gozhenko, N. A.**, and Yu. M. Altaiski, resistance of metal/semiconductor contact, 3441
- Gozzini, A.**, with others, interaction of cm waves with plasma, 1691
- Grabbe, H.**, optical compensation by rotating prisims in film scanners, 1227
- with F. Below, influence of optical system on television picture, 1233
- Graf, L.**, with others, starting of gas discharge in a.c. field, 3338
- Graham, B.**, with J. B. Meikle, electrons produce high-temperature dielectric, 2464
- Granger, S. H.**, Independent-Television network, 2555
- Gränicher, H.**, and others, dielectric properties of ice, 377
- Granier, J.**, and N. Astoin, absorption spectrum of NO in far ultraviolet, 2347
- Granville, J. W.**, junction transistor with high current gain, 3565
- Graves, C. D.**, radar polarization power scattering matrix, 1425, (D) 2399
- Gray, G. W.**, toroidal transformers pass video bandwidths, 2311
- Greatbatch, W.**, and W. Hirtreiter, Ge-transistor amplifiers stable to 95°C, 705
- Green, E.**, ladder networks, synthesis of, 42, design data for, 3296
- Green, W. B.**, conduction and breakdown in hexane, 846
- Greenberg, H.**, with others, multiple-frequency-shift teletype systems, 564
- Greene, J. G.**, with W. D. White, noise temperature of gas-discharge noise generators, 3146
- Greene, R. F.**, with R. L. Longini, ionization interaction between impurities in semiconductors, 3409
- Greenspan, M.**, and C. E. Tschiegg, speed of sound in water with dissolved air, 2935
- C. E. Tschiegg and F. Breckenridge, temperature coefficient of speed of sound in water, 2934
- Gregersen, S.**, Copenhagen-Thorshavn radiotelephony link, 3217
- Gregory, J. W. G.**, with others, extraction of beam from Liverpool synchrocyclotron, 873
- Greiner, C.**, magnetization-reversal centres in Fe-Ni wires, 179
- Greiner, J.**, field strength in magnetic reproducing head, 2611
- Gremmelmaier, R.**, GaAs photo-element, 2250
- Grenet, G.**, conductivity of ionosphere and a.f. geomagnetic disturbances, 1718
- Grenier, C.**, superconductivity and magnetostriction, 1041
- Grensted, P. E. W.**, frequency-response analysis of nonlinear systems, 56
- Gribov, V. N.**, with L. E. Gurevich, dielectric losses in ionic dielectrics, 2767
- Griese, H. J.**, television transmissions without synchronization levels, 1222; multiple-pulse-time modulation, 2214
- and E. Haberkant, instruments for field-strength measurements, 2853
- Griffiths, J. W. R.**, visual detectability of signals in noise, 2400
- with D. G. Tucker, detection of pulse signals in noise, 129
- Grigor'eva, V. S.**, with others, photoelectric properties of compounds with zinc-blende structure, 2779
- Grillot, E.**, preparation of CdS single crystals, 2145
- Grimmond, W.**, and W. H. P. Leslie, batching and counting using decade tubes, 1981
- Grinberg, G. A.**, transient processes in electronic devices, 3571
- and others, e.m. field of linear radiator inside parabolic reflector, 3650
- Grivet, P.**, M. Y. Bernard and A. Septier, Optique électronique I: Lentilles électroniques, (B)3507
- Groendijk, H.**, and K. S. Knol, noise of valves and transistors, 616
- with others, noise factor of four-terminal networks, 691
- Groetzinger, G.**, with J. Aron, photomagneto-electric effect in Ge, 1449
- Groll, H.**, and G. Pusch, cavity-resonator frequency meter, 219
- with H. Meinke, transmission of radar displays, 3744

- Groschwitz, E.**, temperature coefficient of junction transistors, 295; ionization by collision in Si and Ge, 2436
 — with R. Wiesner, temperature dependence of photocurrent in Ge p - n junctions, 1097
- Grosjean, C. C.**, theory of terminated iris-loaded guides, 19
- Gross, B.**, linear systems, 2650
- Gross, E. F.**, excitation spectrum of excitons in solid, 3104
- Gross, E. P.**, and M. Krook, collision processes in gases, 3345
- Gross, F.**, dielectric constant of insulating materials in the 4-kMc/s range, 3139
- Gross, J.**, tuned circuits containing negative resistance, 3303
- Grosskopf, I.**, measurements on receiving aerials, 668
- Grosskopf, J.**, K. H. Kappelhoff and G. Kopte, statistical distribution of random electrical processes, 2166
- Grossner, N. R.**, transformer for 'zero-impedance' amplifier, 2643
- Grosvalet, J.**, measurement of surface recombination velocities, 3088
- Groszkowski, J.**, stability of LC oscillators, 2337
- Groubert, E.**, with P. Caillon, effects of pressure on dielectric constants of liquids, 2769
- Groves, G. V.**, upper-atmosphere wind and sonic velocity determination, 2046; determining upper-atmosphere properties by sound propagation, 2721
- Gruen, W. J.**, colour subcarrier synchronization problem, 3550
- Grümm, H.**, knife-edge method to determine aberrations of electron beams, 1677; e.s. fields permitting calculation of electron paths, 3167; aperture aberration in magnetic electron lenses, 3172
- Grunberg, L.**, and K. H. R. Wright, structure of abraded metal surfaces, 1028
- Grund, A.**, with others, MnO₂ as depolarizer, 1219, 1872
- Grund, E.**, and H. McG. Ross, design and applications of digital computers, 1630
- Grusauskas, P.**, with D. K. Cheng, aperture phase errors in microwave reflectors, 332
- Guarracino, O.**, low-pass filters for metre waves, 3298
- Gubbins, T. F.**, with others, high-power demountable klystron for X band, 944
- Guber, W.**, and W. Stetter, optical method for determining grid-cathode spacing, 2569
 — with K. Gossiau, high-slope multigrad valve and its applications, 3262
- Guckenburg, W.**, magnetization of magnetic tape, 2612
- Gudmundsen, R. A.**, and others, recent developments in Si fusion transistors, 926
 — with others, photoelectric mixing of incoherent light, 710
- Guénard, P.**, and O. Doehler, E and C type travelling-wave devices, 1590
- Guérin de Montgareuil, P.**, with others, analysis of impurities in gases, 3349
- Guernsey, J. F.**, multiple tuning in television aerials, 1307
- Guertler, R.**, h.f. filters and tuning of a.m. transmitters, 922
- Guest, J.**, solution of simultaneous equations, 1799
- Guggenbühl, W.**, and M. J. O. Strutt, spontaneous fluctuations in semiconductor barrier layers, 1894
- Guillaud, C.**, and M. Paulus, permeability and grain size of Mn-Zn ferrites, 3122
 — and G. Villers, effect of substituting Al³⁺ ions for Fe³⁺ ions on magnetic properties of compounds, 3451
 — M. Paulus and R. Vautier, reduction of eddy-current losses in ferrites, 3457
 — B. Zoga and G. Villers, influence of alkali ions on Mn-Zn ferrites, 3121
- Guillien, R.**, diagram for impedance transformations, 1613; line corrections in permittivity measurements, 2477
- Guiot-Guillain, G.**, structure of La, Pr and Sm ferrites, 2128
 — and X. Wache, analysis of Sm ferrite, 184
- Guidner, W. G.**, with others, excess Ba in oxide cathodes, 301
- Gulick, E. C.**, with L. J. Bobb, e.s. loudspeaker, 316
- Gumlich, H. E.**, quenching and sensitizing effects of electric fields, 2760
 — with others, effect of electric fields on X-ray-excited phosphors, 2081
- Gunn, E. E.**, with N. H. Langton, field of dielectric-heating work circuit, 3843
- Gunn, J. B.**, field dependence of electron mobility in Ge, 3782
 — with D. C. Avery, modulated light spot in semiconductor measurements, 1081
- Gunn, J. C.**, theory of radiation, 2011
- Güntherschulze, A.**, pulse-controlled cathode sputtering and electron emission, 385
- Gupta, B. K.**, A. M. Mani and S. P. Venkiteswaran, radar observations of rain at Poona, 127
- Gurevich, A. V.**, velocity-distribution function of electrons, 724
- Gurevich, L. E.**, and V. N. Gribov, dielectric losses in ionic dielectrics, 2767
- Guro, G. M.**, with E. I. Adirovich, times of electronic processes in semiconductors, 3414
- Gurov, V. V.**, and others, electronic analogue apparatus of U.S.S.R. Academy of Sciences, 2636
- Gurvich, E. I.**, and E. Kondorski, relation of magnetic characteristics to thickness of lamination, 1133
- Gusev, A. A.**, quantum theory of magnetostriction, 1040
- Guseva, L. G.**, with others, characteristics of discharge at positive probe, 2686
- Gutkin, L. S.**, interaction of signal and noise in inertial detector, 3202
- Gutmann, F.**, with G. S. Buchanan, linearity of electrolytic impedances, 3812
- Güttinger, P.**, nonlinear cross-talk in multicarrier systems, 2219
- Georgy, E. M.**, with others, solid-state detector for low-energy ions, 2181
- Haake, C. H.**, frequency dependence of electroluminescence, 2082
- Haantjes, J.**, and K. Teer, compatible colour television, 1224
- ter Haar, D.**, transport properties of metals and semiconductors, 2420
 — and A. Neves, thermal conductivity and thermoelectric power of semiconductors, 3771
- Haas, G. A.**, and E. A. Coomes, Schottky effect for SrO films on Mo, 1261
- Haas, P. H.**, with others, re-entrant cavity for measurement of complex permeability, 2848
- Haberkant, E.**, with H. J. Gries, instruments for field-strength measurements, 2853
- Haberstroh, G.**, characteristic energy losses, 3342
- Haddenhorst, H. G.**, transmission of e.m. waves through inhomogeneous layers, 1035
- Hadley, L. N.**, with J. H. Apfel, exciton absorption in Cu₂O, 1769
- Haefel, R.**, measurement of low gas pressures by means of gas discharge in magnetic field, 848; verification of theory of field emission, 2359
- Hagelbarger, D. W.**, with W. G. Pfann, e.m. suspension of molten zone, 1775
 — with C. E. Shannon, concavity of resistance functions, 1635
- Haegene, M.**, with others, low-temperature study of ferroelectric phosphates and arsenates, 1738
- Hagiwara, S.**, with others, observation of nuclear resonances with coaxial-cavity spectrometer, 1696
- Hahn, D.**, and F. W. Seemann, temperature dependence of brightness waves in electroluminescence, 2761
 — with others, brightness waves in luminescence of phosphors, 137
- Hahn, E. L.**, with others, spin-echo storage, 1038
- Hähnlein, A.**, semiconductor solar-energy converters, 3538
- Hall, B. I. H.**, diffusion of electrons in gas, 1673
- Hall, D. L.**, saturated diodes, (D)1596
- Hall, J. F., Jr.**, and W. F. C. Ferguson, optical properties of CdS and ZnS, 1062
- Hall, W. G.**, with others, electron physics tables, 2682
- Hall, W. M.**, prediction of pulse radar performance, 1427
- Halliday, J. S.**, with others, stereoscopic reflection electron microscopy, 3170
- Hallows, R. W.**, wafer cells, 2888
- Halperin, A.**, and G. F. J. Garlick, absorption spectrum of CdS, 774
- Halsted, R. E.**, photoluminescent modulation in ZnS phosphors, 777
- Hamilton, E. L.**, and others, acoustic properties of shallow-water sediments, 1930
- Hamilton, T. D. S.**, and G. T. Wright, transit-time spread in electron multipliers, 2247
- Hammond, P.**, screening effect of iron tubes, 2367
- Hamoir, W.**, test equipment for Belgian television transmitters, 590
- Handelman, G.**, with H. Cohen, vibrations of plate with added mass, 2930
- Haney, D. W.**, calculating noise level in radar receivers, 3828
- Hannam, H. J.**, with others, flicker noise in secondary-emission tubes and multiplier phototubes, 3587
- Hannemann, H.**, and H. Piechatzek, carrier-frequency installations, 2218
- Hansen, J.**, and I. L. Nielsen, Copenhagen television station, 1569
- Hansford, I. V.**, with K. E. Wood, flutter computer with low-gain amplifiers, 335
- Hanson, A. W.**, and A. Menary, electronic presentation of optical diffraction patterns, 2180
- Hanson, G. H.**, shot noise in p - n - p transistors, 1246
- Hansson, L.**, with K. Göransson, subharmonic oscillations in nonlinear system, 2977
- Han-Ying Ku.** See Ku, Han-Ying.
- Harada, K.**, with others, time-signal generator using decade tubes, 1657
- Harada, R. H.**, and H. T. Minden, photosensitization of PbS films, 3751
- Harang, L.**, height distribution of auroral emissions, 3739
 — with A. Onholt, lifetime of ¹⁵S state of oxygen atom in atmosphere, 1053
- Hardy, D. R.**, B. Jackson and R. Feinberg, recording high-speed single-stroke transients, 1494
- Hargens, C. W.**, wireless sound systems, 2278
- Harjharan, P.**, and M. S. Bhalla, logarithmic megohmmeter, 3152
- Harkness, S.**, with F. J. Wilkins, electronic supply for calibration of instruments, 1554
- Harloff, H. J.**, with K. Gossiau, characteristics of bi-stable multi-vibrators, 1006
- Harman, T. G.**, segregation of impurities in InSb, 2808
- Harman, W. A.**, with D. A. Dunn, experimental transverse-current travelling-wave valve, 3253
 — with others, transverse-current travelling-wave valve, 3252
- Harnik, E.**, with others, carrier-deficit phenomena in Ge, 1096; recombination on Ge surfaces, 2442
- Harnischmacher, E.**, with others, observations of ionospheric movements, 755
- Harper, P. G.**, motion of conduction electrons in magnetic field, 380, application to diamagnetism, 381
- Harper, W. R.**, charging of quartz surfaces, 447
- Harpur, W. W.**, and A. R. Ubbelohde, conductance mechanisms in CsCl, 1103
- Harrick, N. J.**, infrared absorption and surface recombination velocity in Ge, 2109
- Harries, J. H. O.**, rubber-membrane and resistance-paper analogies, 1492
- Harrington, R. D.**, R. C. Powell and P. H. Haas, re-entrant cavity for measurement of complex permeability, 2848
- Harris, C. M.**, acoustical properties of carpet, 1294
- Harris, D. J.**, and P. O. Hawkins, use of krypton-85 in measuring gas clean-up rates, 1733

- Harris, I. A.**, coaxial resistor mounts for 0-4 kMc/s, 2313
Harris, K. E., secondary surveillance radar systems, 3388
Harris, V., and M. M. Tall, prediction of electronic equipment reliability, 1926
Harrison, A. E., with R. E. Wall, Jr, broad-band microwave frequency spectrum, 1806
Harrison, W. A., mobility in Zn blende and InSb, 2116
Harrison, W. N., with others, resistivity of vitreous ternary lead silicates, 2827
Harrower, G. A., measurement of electron energies, 850; Auger emission of secondary electrons, 3028
Hart, A., with L. F. Bates, magnetization curves and domain structure, 3450
Härtel, W., writing speed of light-beam oscillographs, 530; accuracy of estimation of oscillograms, 531
Harten, H. U., and W. Schultz, barrier-layer photoelectric effect in Ge, 614
Hartke, D., with A. S. Bagley, precision frequency-measuring system, 524
Hartley, M. S., ultrasonic machining, 1170
Hartshorn, L., and J. J. Denton, calibration of inductance standards, 3134
Hartz, T. R., radio star scintillations and ionosphere, 422
Harvey, J. A., movement of sporadic-E ionization, 1710
Harvey, R. V., G. F. Newell and J. G. Spencer, v.h.f./u.h.f. field-strength recording receiver, 3528
Harwood, H. D., with D. E. L. Shorter, ribbon-type pressure-gradient microphone, 1607
Hasegawa, H., with P. W. Anderson, considerations on double exchange, 1117
Haselgrove, J., ray theory and method for ray tracing, 755
Hashimoto, T., and A. Yokoyama, decrease of grid emission by improvement of electroplating, 632
Hashizume, S., with others, geomagnetic variations during solar eclipse, 2045
Hasley, A. D., with others, magnetic pulse modulators, 36
Hasselbeck, W., stability and accuracy of s.w. receiver E104, 556; extendible receiver installations for telegraphy, 1536
Hastings, C., Jr., Approximations for Digital Computers, (B)675
Hastings, J. M., and L. M. Corliss, antiferromagnetic transition in Zn ferrite, 3800
Hatanaka, T., and others, solar enhanced region at cm- λ from eclipse observations, 2043
Hatton, G. H. T., series electronic voltage regulator, 575
Hauer, F., and G. Keck, rendering ultrasonic waves visible, 963
Hauge, O., with others, r.f. observations of solar eclipse 30th June 1954, 3719
Haus, H. A., with F. N. H. Robinson, analysis of noise in electron beams, 1593
Havens, R. J., H. Friedman and E. O. Hulbert, ionospheric F₂ region, 755
Hawes, F. C., with W. K. Clothier, differential amplifier for low-frequency bridges, 3150
Hawkes, H. D., and A. H. M. Arnold, wattmeters, 1168
Hawkins, G. S., radar echoes from meteor trails, 3717
 — and A. F. Cook, recombination as source of light from meteor trains, 3362
Hawkins, P. O., with D. J. Harris, use of krypton-85 in measuring gas clean-up rates, 1733
 — with others, keep-alive instabilities in t.r. switch, 2251
Hawkins, T. H., with T. S. Moss, recombination radiation from InSb, 2807
Hawkins, W. R., with others, reproducing equipment for fine-groove records, 2279
Haworth, F. E., with W. S. Boyle, glow-to-arc transition, 2356
Hayakawa, S., and N. Hokkyo, e.m. radiation from electron plasma, 3706
Hayasaka, T., K. Masuzawa and M. Suzuki, stabilization of Type-MR-103 capacitor microphone, 2276
 — and others, application of titanium to acoustic instruments, 3810
Hayashi, I., with others, magnetic resonance in α -Fe₂O₃, 486
Hayden, J. D., silicone insulants, 1476
Haydon, S. C., with others, pre-breakdown ionization currents in hydrogen, 1023
Hayes, R. E., with others, transistor digital fast multiplier, 1631
Hayes, W. A., synthesizing crystal stability, 57
Haynes, J. R., and J. A. Hornbeck, trapping of minority carriers, in n-type Si, 1087
 — and W. C. Westphal, recombination radiation from Si, 2789
Hayward, C., with T. H. Kinman, crystal cutting, 1441
Hazzaa, I. B., with K. N. Sedra, effect of solar flares on ionosphere, 423
Head, J. W., with C. G. Mayo, impedance concept, 2309
Heading, J., reflection of long waves from ionosphere, 546
Headrick, L. B., with others, improvements in Type-21AXP22 colour kinescope, 3554
Heaps, H. S., reflection of sound from sinusoidal surface, 5; effect of noise on detection of random signal, 904; reflection from surface of nonuniform impedance, 3601
Heartz, R., and H. O. Bueltman, Jr, perpendicularly superposed magnetic fields, 339
Heaton, H. T., preventing fires from radio and television receivers, 3205
Hechtel, R., electrodes for Pierce-type electron guns, 1910; modern reflex klystrons, 3574
Heck, L., and F. Bürk, sound transformations in broadcasting studio technique, 2948
Hector, F. S., with J. H. Meek, recording magnetic variometer, 105
Hedgcock, F. T., magnetic susceptibility of n-type Ge, 2107
Hedge, L. B., cascade a.f. amplifier, 2343
Hedlund, D. C., L. C. Edwards and W. A. Whitcraft, Jr, ionospheric scatter techniques, 3185
van Heerden, I. J., and T. Thambyahpillai, 27-day recurrence tendency of cosmic-ray intensity, 1045
 — with M. Possener, variation of cosmic-ray intensity near 1954 sunspot minimum, 2712
Heffner, J. B., with P. M. Toscano, c.r. tube power supply uses transistor oscillator, 3887
Heggs, P., analogue computers, 2635
Heidenreich, R. D., with others, Co ferrite heat-treated in magnetic field, 1788
Heidester, R., and E. Henze, improvement of reception by diversity, 2881
Heikes, R. R., magnetic transformation in MnBi, 171; relation of magnetic structure to conductivity in NiO, 462
Heiland, G., conductivity of ZnO crystals, 1105
Heilmann, A., broadside and end-fire radiators with continuous illumination, 1960
Heilpern, W., cascade generators for particle acceleration up to 4 MeV, 1506
Heimann, W., inertia effects in the vidicon, 2552
Heinz, O., E. M. Gyorgy and R. S. Ohl, solid-state detector for low-energy ions, 2181
Helaine, A., with J. Bouchard, ionospheric propagation of decametre waves, 1853
Helliwell, R. A., and others, the 'nose' whistler, 2393
 — with others, Stanford-Seale whistler observations, 2392
Hellwig, G., motion of charged particles in magnetic field, 2704
Helms, J. G., theory and technique of electron-microscope stereograms, 1183
 — and H. J. Orthmann, theory and technique of electron-microscope stereograms, 1183
Helmis, G., optical transitions of impurity-centre electrons, 3770
Helstrom, C. W., with others, post-deflection-focus colour kinescope, 3894
Hemingway, A. V., with others, tridac analogue computer, 2300
Hemmenway, K. N., balanced unregulated power supply, 3537
Henderson, C. L., with D. W. G. Chappell, horizontal velocity of ionospheric movements, 2387
Henderson, J. T., and M. Romanowski, standard of mutual inductance, 1830
Henisch, H. K., and J. Zucker, estimation of resistivity and lifetime of semiconductors, 3824
Henle, R. A., multistable transistor circuit, 37
Henry, R. P., stabilized power supply for ionization gauge, 2750; determination of pressure using ionization gauge, 3391
Henry, W. E., and M. J. Boehm, magnetic saturation of γ -Fe₂O₃, 2451
Henry, W. G., and J. L. Rogers, magnetic susceptibility of diamagnetic alloys, 2824
Hensley, E. B., conduction mechanism in oxide-coated cathodes, 2585
Henze, E., initial transients with a.m. and f.m., 45; bandwidth and effective noise bandwidth, 903; transformation of teleprinter alphabet, 1544
 — with R. Heidester, improvement of reception by diversity, 2881
Heppner, J. P., with C. Y. Johnson, night-time measurement of ion composition to 120 km, 1409
Herbert, R. A., with others, electroluminescence of GaP, 1433
Herbstreit, J. W., and M. C. Thompson, phase measurements over transmission paths with atmospheric turbulence, 234
Hercocock, R. J., and D. M. Neale, shutter tester using photoelectric integrator, 889
Herd, G. R., with others, definition of terms in study of reliability, 2596
Herlet, A., current density of p-i-n rectifier, 598
 — and H. Patalong, blocking properties of junction rectifiers, 2901
Herman, F., energy-band structure of zinc-blende-type crystals, 145; band structure of Si and Ge, 806
Hernqvist, K. G., plasma oscillations in electron beams, 289
Hervey, E. M. J., experimental studies on acoustic radiation pressure, 648
Herring, C., and E. Vogt, theory for many-valley semiconductors with anisotropic scattering, 2423
Hers, J., unit of frequency, 1481
Herscovici, S., with L. Thourel, design of radomes, 1965
Hersh, J. F., with F. V. Hunt, wide-range logarithmic voltmeter, 856
Hershfield, W. N., multiprogram f.m. broadcast system, 3215
Hertz, C. H., continuously controllable gas discharge, 2927
Hervé, J., improvement of stabilized Pound oscillator, 355
Herz, R., quadrupoles for frequency compensation of aerial impedance, 2991
Hess, A., with others, design of r.f. permeameter, 3482
Hess, V. F., V. J. Kisselbach and H. A. Miranda, Jr, α -ray emission from earth's surface, 3370
Hesselbach, H., deviating aerials for television, 3641
Hessler, J., with others, distribution of auroras in Alaska, 1722
Hetland, G., Jr., and R. K. Buss, low-ripple regulated power supply, 572
Heuvelman, C. J., and A. van Weel, group-delay measurements, 2482
Hey, J. S., and S. J. Parsons, radar measurement of low elevation angles, 2746
Heynick, L. N., R. J. Wohl and D. H. Andrews, cathode-ray recorder, 2263
Heywang, H., impedance of wound capacitors, 1982
Heywang, W., and R. Schöfer, influence of structure on hysteresis of BaTiO₃, 3758
Hibberd, F. H., observation of ionospheric self-interaction, 2198
Hibberd, R. G., with others, Ge and Si power rectifiers, 2885

- Hickman, J. S.**, with G. E. Martin, directional properties of plane radiators with bizonal shading, 1281
- Hickmott, J., Jr.**, with others, signal/noise ratios of photoconductive detectors, 2565
- Hiedemann, E. A.**, with A. P. Loeber, investigation of ultrasonic waves by light refraction, 1941
- Higa, W. H.**, nonlinear coupling in ferroelectric device, 3671
- Higashimura, M.**, with others, amplitude probability distribution of atmospheric noise, 3135
- Hilbourne, R. A.**, and D. D. Jones, transistor power amplifiers, 366
- Hildreth, D. E.**, crystal filter, 693
- Hill, E. L.**, shielding by conductive coatings, 1520
- Hill, G. W.**, and T. Pearcey, starting routines for C.S.I.R.O. computer, 669
- Hilsum, C.**, absorption edge of amorphous Se, 3423
— D. J. Oliver and G. Rickayzen, photoelectromagnetic effect in InSb, 145
- Hines, C. O.**, hydromagnetic resonance in ionospheric waves, 111; variations in number of shower meteors detected by forward scattering, 738; electron resonance in ionospheric waves, 3372
— and others, dependence of meteoric forward-scattering on acrial patterns, 1198
— with others, variations in number of shower meteors detected by forward scattering, 1046
- Hines, M. E.**, M. Chrunev and J. A. McCarthy, digital memory in barrier-grid storage tubes, 1262
— G. W. Hoffman and J. A. Saloom, positive-ion drainage in electron beams, 623
- Hiral, M.**, with others, diffraction effect of mountains for v.h.f. radio communication, 1859
- Hirao, K.**, and H. Marayama, instruments for observation of v.h.f. fading, 854
- Hirono, M.**, and H. Maeda, distortion of F_2 region on magnetic equator, 424
— with others, geomagnetic distortion in ionosphere, 425
- Hirsch, C. J.**, N.T.S.C. colour television, 2548; television today, 3543
- Hirsh, I. J.**, with R. C. Bilger, masking of tones by bands of noise, 3611
- Hirst, W.**, with others, stereoscopic reflection electron microscopy, 3170
- Hirtreiter, W.**, with W. Greatbatch, Ge-transistor amplifiers stable to 95°C, 705
- Hitchcox, G.**, resistance measurement using electronic techniques, 3151; valve voltmeter and its uses, 3832
- Ho, K. C.**, design of triode gun, 1257
- Hodgkinson, R. J.**, stoichiometry of intermetallic semiconductors, 3412
- Hodgson, A. D.**, and G. M. B. Wills, microwave system in Canada, 2890
- Hoffman, G. R.**, coplanar-mesh storage, 2923
- Hoffman, G. W.**, with others, positive-ion drawings in electron beams, 623
- Hoffman, L. C.**, and W. O. Statton, structure in vitreous silicates, 190
- Hoffman, W. C.**, high-frequency back-scatter from sea surface, 1199; scattering of e.m. waves from random surface, 1382
- Hoffmann, H.**, integrating equipment [differential analysers], 2302
- Hoffmann, J. C.**, influence of alternating voltage and direct voltage on nonlinear capacitor, 2649
- Hoffmann, O.**, transmission of electrons by Al_2O_3 films, 1365
- Hoffmeister, C.**, electrophysical determination of meteor velocities, 409
- Hofman, D.**, with D. de Nobel, dielectric constant of CdTe, 3790
- Hofmann, R.**, and W. Waleher, calculation of time functions for broken rational transform functions, 1151
- Hogarth, C. A.**, and W. Bardsley, effect of illumination on noise of Si filaments, 1089
- Hogg, D.**, atmospheric-noise levels in Africa, 2740
- Hogg, D. C.**, with A. B. Crawford, atmospheric attenuation at mm λ , 3862
- Hojo, H.**, multiple scattering by irregular medium, 2192
- Hok, G.**, noise factor of travelling-wave valves, 3579
— with J. E. Rowe, backward waves, 3577
- Hokkyo, N.**, with S. Hayakawa, e.m. radiation from electron plasma, 3706
- Holden, A. N.**, and others, guanidine aluminium sulphate hexahydrate, 2415; new low-temperature ferromagnets, 3804
- Hollis, J. L.**, avoiding grid current in class-B modulators, 1571
- Hollmann, H. E.**, applications for tandem transistors, 3001
- Hollway, D. L.**, electrolytic-tank equipment, 1820; tracing electron trajectories in crossed fields, 1821
— with C. T. Murray, equipment for solving field problems, 1819
- Holmes, D. K.**, with others, effects of gamma radiation on Ge, 3438
- Holmes, P. J.**, X-ray camera for detection of crystal imperfections, 840
— with E. Billig, growth and etching of crystals with diamond structure, 156
- Holmes, P. L.**, with others, photomultiplier pulse durations and shapes, 298
- Holonyak, N.**, with others, $p-n-p-n$ transistor switches, 3899
- Holt, F. S.**, with others, double-parabolic-cylinder aerial, 985
- Holzer, R. E.**, and O. E. Deal, low-a.f. e.m. signals of natural origin, 2070
- Homilius, K.**, a.f. phase-angle meters using transistors, 1167
- Honig, A.**, and J. Combrisson, paramagnetic resonance in As-doped Si, 3425
— with others, microwave application of electron spin resonance, 3032
- Honma, T.**, with N. Sawazaki, microwave repeater system using travelling-wave valves, 1212
- Honnell, P. M.**, prescribed-function vibration generator, 2501
— and R. E. Horn, matrices in analogue machines, 672
- van den Hoogenband, J. C.**, and J. Stolk, impedance measurements by long line, 1158
- Hoogenstraaten, W.**, with G. Diemer, hole mobility in CdS, 3791
- Hooker, P. M.**, with L. H. Light, transistor d.c. converters, 573
- de Hoop, A. T.**, integrals in diffraction problems, 1379; variational formulation of diffraction problems, 1378
- Hooper, A. H.**, abnormal v.h.f. propagation, 2517
- Hooper, D. E.**, and A. E. Jackets, RC oscillators using junction transistors, 3308
- Hoover, M. V.**, with W. N. Parker, gas tubes protect transmitters, 1235
- Hopkins, H. G.**, d.f. plotting aid, 2743
- Hopkins, R. L.**, and E. N. Clarke, thermal acceptors in Ge, 1765
- Hopmann, W.**, with H. Billing, micro-program control mechanism, 1629
- Hopwood, W.**, with others, mechanism of breakdown in hydrogen, 387
- Horie, T.**, and others, thermal transition of transparency in $BaTiO_3$, 453
- Horlock, B. A.**, with others, underwater television camera, 1226
- Horn, R. E.**, with P. M. Honnell, matrices in analogue machines, 672
- Hornbeck, J. A.**, with J. R. Haynes, trapping of minority carriers in n -type Si, 1087
- Horner, F.**, and C. Clarke, waveforms of atmospheric and location of thunderstorms, 122
- Horowitz, G.**, with others, circuit element using magneto-resistive effect, 1319
- Horton, C. W.**, Gram-Charlier series to represent noise, 2677
- Horton, J. W.**, with others, spin-echo storage, 1038
- Hosler, W. R.**, with others, properties of Mg_3Sn , 1104
- Hotston, E. S.**, and J. E. Houldin, measurement of dielectric constant 1815
- Houldin, J. E.**, with E. S. Hotston, measurement of dielectric constant, 1815
- Houlgate, H. J.**, with others, reproducing equipment for fine-groove records, 2279
- House, A. S.**, and K. N. Stevens, testing description of vowel articulation, 653
- House, H.**, with M. J. Morant, work function and patch field of meta surface, 2023
- Hove, J. E.**, magnetic susceptibility of graphite, 1113
- Howe, H. H.**, with J. K. Wait, ground-wave propagation at 200 c/s — 500 kc/s, 3516
- Howitt, G.**, with others, colour-television-receiver design, 1881
- Howland, R. E.**, with E. D. Fitton, line transmission circuits, 2614
- Hoyaus, M.**, with others, plasmograph for studying electric discharges, 532
- Hrostowski, H. J.**, and others, Hall effect and conductivity of InSb, 1772
- Hsieh, C. L.**, 45-MeV linear accelerator, 879
- Hsu, Chih Chi**, trigger circuit of signal-seeking radio using 'difference voltage', 555
- Hubbard, J.**, electronic interactions in solids, 1017
- Huber, O.**, with E. Deeg, dielectric behaviour of clays, 450
- Hübner, R.**, industrial generators for r.f. heating, 1174
- Huerta, A. Fernandez.** See Fernandez Huerta, A.
- Hughes, C. J.**, signalling systems for submarine telegraph circuits, 563
- Hughes, D. S.**, and J. M. Kennel, elastic-wave velocity in fused quartz and armco, 1131
- Hughes, R. C.**, with P. P. Coppola, pressed dispenser cathode, 1916
- Hughes, V. A.**, calibration of noise source for S band, 3829
- Hühn, C. F.**, cr.-tube factory at Ulm, 1927
- Hulbert, E. O.**, with others, ionospheric F_2 region, 755
- Hulme, V. B.**, 16-mm telecording system, 919
- Humbach, W.**, radiation damping in particle accelerators, 872; alignment of strong-focusing synchrotron, 875
- Humby, A. M.**, and C. M. Minnis, asymmetry in performance of radio-telegraph circuits, 3208
- Humphreys, J. R.**, mobile radio development, 3884
- Humaerts, J.**, and M. Nicolet, ionospheric results during eclipses, 1412
- Hunt, A. L.**, with P. A. Anderson, work function of Pb, 3112
- Hunt, F. V.**, exact equations for propagation of sound in fluids, 1276
— and J. F. Hersh, wide-range logarithmic voltmeter, 856
- Hunten, D. M.**, F. E. Roach and J. W. Chamberlain, photometric unit for airglow and aurora, 3043
- Hunter, R. S.**, photoelectric colorimeters for television tubes, 1229
- Huntington, H. B.**, and R. D. Southwick, ultrasonic velocities in $BaTiO_3$ ceramics, 144
- Hurd, R. A.**, end-fire arrays of magnetic line sources, 3642
- Hurley, R. B.**, design of transistor amplifiers, 367
- Huruhata, M.**, H. Tanabe and T. Nakamura, photoelectric studies of night sky light, 1714
- Hutson, A. R.**, effect of water vapour on Ge surface potential, 3097
- Huxley, L. G. H.**, interpretation of measurements of radio-wave interaction, 2197; energy losses of electrons in diatomic gases, 2688
- Hyde, F. J.**, impedance of thermistor at low frequencies, 678; excess noise spectra in Ge, 2445; noise spectra of Ge $p-n$ diode, 2558
- Hyder, H. R.**, voltmeter amplifier, 3485
- Hyman, R. A.**, and D. H. Tomlin, fixation of iodine in Se, 802
- Hynes, R. W.**, with others, triode analogue computer, 2300
- Iandelli, A.**, covalent alloys PrGe and CaGe, 1796
- Ibuki, S.**, and S. Yoshimatsu, photoconductivity of stibnite, 479
— with others, influence of infrared rays on photoconductivity of CdS, 130
- Ichida, T.**, with others, time-signal generator using decade tubes, 1657
- Ida, I.**, with others, 40-50-Mc/s overtone quartz units, 2330
- Igarashi, Y.**, with others, dissociation of BaO under electron bombardment, 3260
- Iida, S.**, H. Sekizawa and Y. Aiyama, uniaxial anisotropy in Fe-Co ferrites, 1467
- Iijima, S.**, with others, photocurrent of CdS in magnetic field, 2756

- Ikeda, M.**, with others, studies on diffracted waves from a mountain, 898
- Ikornikova, N. Yu.**, with V. P. Butuzov, liquid inclusions in artificial quartz, 841
- Illivici, A.**, Giorgi units, 3327
- Ilyushenko, V. L.**, with A. I. Drokin, temperature dependence of magnetization of Ni, 2131
- Ince, A. N.**, and C. W. Oatley, properties of electroluminescent phosphors, 782
- Indjoudjian, M. D.**, and J. Oswald, sampling of valves for inspection, 2253
- Ingard, U.**, and D. C. Pridmore-Brown, radiation from acoustic boundary layer, 1935; scattering of sound by sound, 2939
- Ingram, D. J. E.**, Spectroscopy at Radio and Microwave Frequencies, (B)1393
- Inkster, W. J.**, with others, propagation test at 505 Mc/s and 4090 Mc/s on beyond-horizon paths, 234
- Inuishi, Y.**, with others, electron emission, conduction and noise of oxide-coated cathodes, 629
- Ioffe, A.**, semiconductor electronics, 459
- Ioffe, A. F.**, Poluprovodniki v Sovremennoi Fizike (Semiconductors in Contemporary Physics), (B)1149; thermoelectric generators, 3227
- and others, semiconductor thermocouples, 2430
- with A. V. Ioffe, thermal conductivity of semiconductors, 3090
- Ioffe, A. V.**, and A. F. Ioffe, thermal conductivity of semiconductors, 3090
- with others, semiconductor thermocouples, 2430
- Iordanishvili, E. K.**, with others, thermoelectric cooling, 3224
- Irani, K. B.**, low-pass/band-pass frequency transformation, 3299
- Irie, H.**, with others, transmission of microwaves over sea, 3861
- Iris, H. R.**, with E. O. Schonstedt, airborne magnetometer Type-2A, 104
- Ishida, T.**, with others, amplitude probability distribution of atmospheric noise, 3135
- Ismail, M. A. W.**, precise system of f.m. radar, 3746
- Isted, G. A.**, irregularities in E region caused by atmospheric electricity, 755
- Isupov, V. A.**, and others, high permittivity of niobates and tantalates, 3402
- Ittner, W. B.**, III, bridge and short-arc erosion of contacts, 2642
- Ivey, H. F.**, with G. Destriau, electroluminescence, 780
- Iwanaga, K.**, with others, magnetic resonance in α -Fe₂O₃, 486
- Iwase, S.**, experimental study of point-contact transistor, 3564
- Izhak, I. A.**, effect of pressure on ferroelectric ceramics, 2770
- Jaccard, G.**, with others, dielectric properties of ice, 377
- Jaccarino, V.**, with others, ferromagnetic resonance in Mn ferrite, 1134
- Jackets, A. E.**, multivibrators using junction transistors, 2340
- with D. E. Hooper, RC oscillators using junction transistors, 3308
- Jackson, B.**, with others, recording high-speed single-stroke transients, 1494
- Jackson, J. E.**, obtaining electron-density profiles from $P'f$ records, 2381
- Jackson, R. W.**, method of revealing p - n junctions in Ge, 2444
- Jacob, L.**, with W. W. H. Clarke, anomalous emission in low-energy electron beams, 1177
- Jacobs, I. S.**, and C. P. Bean, elongated fine-particle magnets, 1461
- Jacobs, J.**, and H. Berger, large-area photoconductive X-ray pickup tube, 2864
- Jacobs, J. A. H.**, with E. F. MacNichol, Jr, measuring reciprocal time intervals, 1828
- Jaeschke, F.**, value of colour carrier in European colour-television system, 1877
- Jaffe, B.**, R. S. Roth and S. Marzullo, properties of piezoelectric ceramics, 1073
- Jaffe, P. M.**, and E. Banks, oxidation states of Eu in phosphors, 1064
- Jain, S. C.**, with K. S. Krishnan, thermionic constants of semiconductors, 1887
- Jäkel, T.**, dielectric constants of liquids at dm λ , 1157
- James, D. B.**, with U. F. Gianola, ferromagnetic coupling between crossed coils, 3293
- James, H. M.**, with G. W. Lehman, interaction of impurities and mobile carriers in semiconductors, 1749
- James, J. B.**, with E. Franklin, application of transistors to radiation monitors, 3175
- Jamieson, G. G.**, with D. G. Tucker, discrimination of synchronized oscillator, 2334
- Jancel, R.**, and T. Kahan, Lorentz-type plasmas, statistical mechanics of, 755, analysis of coupling of e.m. waves in, 755; theory of plasmas, 1366
- Janeff, W.**, production and properties of metal nitrides, 1102
- Janes, H. B.**, and P. I. Wells, tropospheric scatter-propagation measurements, 234
- with others, fading in propagation through turbulent atmosphere, 250
- Janes, R. B.**, L. B. Headrick and J. Evans, improvements in Type-21AXP22 colour kinescope, 3554
- Janner, K.**, S. Magun and E. Schopper, Van de Graaff generator with liquid charge carrier, 915
- Jánossy, L.**, statistical problems of the electron multiplier, 296
- Javitz, A. E.**, impact of high-energy radiation on dielectrics, 3814
- Jaynes, E. T.**, nonlinear dielectric materials, 784
- Jean, P.**, with R. Bedos, relaxation oscillations in triode valve, 1652
- Jeffress, L. A.**, with others, localization of sound sources, 649
- Jellinek, G.**, E. Menzel and C. Menzel-Kopp, intergrowth of Cu and Cu₂O, 3442
- Jenkins, D. P.**, with D. G. Avery, measurements of diffusion length in InSb, 145
- Jenkins, R. O.**, with I. Brodie, impregnated cathodes containing SrO or CaO, 2918
- Jennings, J. C. E.**, and R. G. Pratt, numerical ray tracing in electron lenses, 76
- Jennison, R. C.**, and M. K. Das Gupta, angular diameter of radio sources, 1700
- Jenny, D. A.**, J. J. Loferski and P. Rappaport, photovoltaic effect in GaAs p - n junctions, 2566
- Jervis, E. R.**, with others, definition of terms in study of reliability, 2596
- Jesty, L. C.**, developments in colour television, 1876
- Jewitt, H. S.**, component tolerance effects in feedback i.f. amplifiers, 2003
- Jeżewski, M.**, and T. Piech, dielectric properties of BaTiO₃, 1740
- Johanson, H. M.**, with others, double-parabolic-cylinder aerial, 985
- Johne, A.**, with W. Kaule, audio-frequency spectrometer, 2174
- Johnson, C. Y.**, and J. P. Heppner, night-time measurement of ion composition to 120 km, 1409
- Johnson, E. O.**, studies of hot-cathode arcs, 1359
- Johnson, F. S.**, temperature distribution of ionosphere, 2380
- Johnson, H. G.**, with J. A. Knosko, long long Yagis, 1961
- Johnson, J. C.**, back-scattering coefficient of mixture of ice and air, 899
- Johnson, L. J.**, and S. E. Rauch, magnetic-amplifier systems for servos, 3014
- Johnson, L. W.**, f.m. receiver design, 3865
- Johnson, M. A.**, with others, motion of cylindrical irregularity in ionized medium, 755
- Johnson, P. D.**, W. W. Piper and F. E. Williams, effect of electron traps on electroluminescence, 3755
- Johnson, P. O.**, with others, photoelectric mixing of incoherent light, 710
- Johnson, W. C.**, with M. G. Morgan, polarization of h.f. sky wave at vertical incidence, 755
- Johnston, D. L.**, with E. F. Dunkin, subminiature transformers and transducers, 1975
- Johnstone, C. W.**, with others, measurement of μ s time intervals, 2835
- Johnstone, G. G.**, junction-diode a.f.c. circuit, 3207
- Jona, F.**, with others, ferroelectricity, aspects of, 785, in alums, 3404
- Jones, D. D.**, with R. A. Hilbourne, transistor power amplifiers, 366
- Jones, D. S.**, scattering cross-section of obstacle, 401
- Jones, E.**, with others, developments in vibration measurement, 225
- Jones, E. E.**, inductance of two elliptic tubes, 2281; magnetostatic force on current-carrying conductors, 3347
- Jones, E. M.**, pulse circuits fabricate code disk, 2975
- Jones, H. Spencer**, definition of second, 513
- Jones, L. M.**, transit-time accelerometer, 3836
- with others, upper-air density by falling-sphere method, 3723
- Jones, R. F.**, abnormal radio propagation 3rd December 1954, 247
- Jones, W. B.**, and others, 300-MeV electron synchrotron, 874
- Jordan, D. B.**, and others, multiple-frequency-shift teletype systems, 564
- Jory, F.**, with others, deriving geomagnetic dipole-field coordinates from cosmic-ray observations, 2371
- Jost, K. H.**, with J. Krumbiegel, investigations on ZnS crystals, 2759
- Jovanović, D. T.**, and V. N. Kostić, distributed amplifier using secondary-emission valves, 1342
- Jumau, L.**, recent patents on accumulators, 1873
- Juretschke, H. J.**, R. Landauer and J. A. Swanson, Hall effect and conductivity in porous media, 3761
- Justi, E.**, with others, bolometers at low temperatures, 1499
- Justice, R.**, and V. H. Rumsey, measurement of electric field distributions, 2843
- Juza, M.**, with others, balloon-borne system for tracking sun, 3844
- Juza, R.**, and H. Puff, ferrimagnetism of Mn₂N, 3799
- Käch, A.**, interference spectra and aerial filters in directional radio systems, 2332
- Kaden, H.**, propagation of e.m. waves between conducting planes, 22; compensation of interference by receiver in parallel, 3206
- Käding, H.**, with H. Krause, television outside-broadcast van, 1230
- Kaempffer, F. A.**, principle of phase invariance, 371
- Kagan, Yu. M.**, and V. I. Perel', theory of Langmuir probes, 1024; mobility and space charge of ions in nonuniform field, 3335
- Kaganov, M. I.**, with others, galvanomagnetic phenomena in metals, 3021
- Kahan, T.**, electrodynamic of turbulent ionized media, 1373
- with R. Jancel, Lorentz-type plasmas, statistical mechanics of, 755, analysis of coupling of e.m. waves in, 755; theory of plasmas, 1366
- with others, interaction of cm waves with plasma, 1691
- Kahn, F. D.**, correction of observational data for instrumental bandwidth, 66
- Kaldanovskii, N. L.**, N. S. Kardashev and I. S. Shklovskii, emitters of cosmic radio emission on λ 3·2 cm, 1044
- Kaiser, T. R.**, Meteors, (B)2741
- with others, radio echoes from meteor trails, 2037
- Kaiser, W.**, P. H. Keck and C. F. Lange, infrared absorption in Si and Ge, 2433
- Kakinuma, T.**, with others, solar enhanced region at cm- λ from eclipse observations, 2043
- Kalashnikov, S. G.**, and N. A. Penin, influence of frequency on rectifying properties of semiconductor diodes, 1889
- and A. E. Yunovich, variation of conductivity of Ge by external field, 1448

- with V. V. Ostroborodova, effect of heat treatment on Ge, 2104; recombination at thermal acceptors in Ge, 2105
- Kalinina, A. M.**, with others, ferroelectric properties of stannates, 3405
- Kallen, R.**, influence of long-wave transmissions on high-frequency diffusion, 3877
- Kallmann, H.**, B. Kramer and A. Perlmutter, infrared stimulation of photoconductivity in luminescent powders, 131
- Kalnajs, J.**, with others, densities and imperfections of single crystals, 838
- Kamenski, E. I.**, quartz parameters and oscillator design, 2770
- Kaminow, I. P.**, with R. J. Kircher, super-regenerative transistor oscillator, 3002
- Kaminski, D. L.**, with others, electron-optical properties of magnetic gaps, 1178
- Kamrlyo, K.**, with others, Zeeman effect in NH_3 microwave spectra, 93
- Kamke, D.**, and H. J. Rose, carrier density in plasma, 3336
- Kanal, Y.**, galvanomagnetic effects in InSb, 477; inductive part in characteristics of semiconductor diodes, 599
- and K. Nii, impurity conduction in Ge, 2792
- Kanavina, N. G.**, with others, depiction of domains of ferromagnetic material, 1793
- Kanaya, S.**, with K. Miya, radio propagation prediction considering scattering, 235; lateral deviation of radio waves, 3508
- Kaner, E. A.**, with M. Ya. Azbel', anomalous skin effect, 3022
- Kanzaki, K.**, with others, influence of infrared rays on photoconductivity of CdS, 130
- Kapitsa, S. P.**, photoelectric fluxmeter, 2163
- Kappelhoff, K. H.**, with others, statistical distribution of random electrical processes, 2166
- Kaprielian, Z. A.**, dielectric properties of lattice of anisotropic particles, 1671
- Kaptsov, N. A.**, with N. A. Popov, discharge in frequency region between h.f. and a.f., 3025
- Karasik, N. Ya.**, with others, X-ray investigation of solid solutions of $BaTiO_3$ - $PbZrO_3$, 1436
- Karbowiak, A. E.**, propagation in anisotropic waveguides, 2287
- Kardashev, N. S.**, with others, emitters of cosmic radio emission on λ 3-2 cm, 1044
- Karlov, N. V.**, with F. V. Bunkin, sensitivity of radiometers, 221
- Karmen, K. N.**, after-effects in Rochelle salt, 1743
- Karnovski, M. I.**, with L. N. Boudareva, directional properties of sound lenses, 315
- Karp, S. N.**, with J. Shmoys, calculation of charge-density distribution from transit-time data, 3382
- Karplus, W. J.**, use of analogue computers with resistance-network analogues, 673
- Kashirin, V. A.**, with others, Russian bibliography on telemetering, 869
- Kashtanova, A. M.**, with G. I. Skanavi, semiconducting ceramics based on WO_3 , 3109
- Kason, J.**, distribution systems, 1210
- Kasper, J. S.**, and B. W. Roberts, magnetic structure of Mn, 2127
- Kasuya, I.**, measurement of bearing of incoming short waves, 549
- and K. Sawada, f_0F_2 at observatories in Japan, 3052
- S. Katano and S. Taguchi, spread echoes in F region over Japan, 1713
- Katagiri, S.**, chromatic aberration in electron microscope, 883
- Katano, S.**, with others, F_2 -layer multiple reflections, 894; spread echoes in F region over Japan, 1713
- Kato, K.**, with S. Kojima, electron avalanches in gas discharge, 3337
- Kats, A.**, and J. M. Stevens, effect of radiation on SiO_2 , 3460
- Katsenelenbaum, B. Z.**, perturbation of e.m. field by deformations, 87; waveguides, degenerate oscillations in, 665, curved, 3633
- Katz, H.**, and K. L. Rau, generation of harmonics, 61
- Katz, L.**, interpolation errors in curves, from commutated data, 3506
- and T. B. Friedman, u.h.f. satellite transmitter-receiver, 2553
- Katzin, M.**, with W. S. Ament, fluctuations in long-range over-water propagation, 3185
- Katzman, J.**, with others, effective geomagnetic equator 3721
- Kaufman, H.**, bibliography of nonuniform transmission lines, 2617
- with others, tables of Bennett functions for two-frequency modulation product, 2213
- Kaule, W.**, and A. John, audio-frequency spectrometer, 2174
- Kaus, P.**, with others, improvements in colour kinescopes, 1567
- Kaus, P. E.**, effect of magnetic deflection on beam convergence, 3553
- Kawabata, K.**, with others, magnetic storms, solar phenomena and cosmic-ray storms, 1708
- Kawabe, K.**, with others, thermal transition of transparency in $BaTiO_3$, 453
- Kawaji, S.**, with A. Kobayashi, adsorption and surface potential of semiconductors, 3788
- Kawakami, K.**, and H. Akima, time constants of detectors in noise measurements, 1864; measuring radio noise voltage, 3137
- T. Takahashi and M. Onoue, discriminating disturbances in solar noise observation, 741
- Kay, H. F.**, electrostriction, 2088
- Kaye, J.**, applications of heat transfer to electronics, 3290
- Kaye, S.**, with others, Ge diffused-junction photo-cell, 615
- Kazakevich, V. V.**, interrelation between Rayleigh's and van der Pol's equations, 3132
- Kazan, B.**, and F. H. Nicoll, electroluminescent light-amplifying panel, 933
- with F. H. Nicoll, large-area photoconductive cells using CdS powder, 612
- Kazes, I.**, with others, atmospheric absorption at 9-35 km/s, 2737
- Keck, G.**, with F. Hauer, rendering ultrasonic waves visible, 963
- Keck, P. H.**, with others, infrared absorption in Si and Ge, 2433
- Keenan, T. C.**, with K. E. Wood, multi-trace c.r. tube display, 1823
- Keep, D. N.**, f.m. radar for mercantile marine, 3072
- Keffer, F.**, temperature dependence of ferromagnetic anisotropy, 1686
- with M. H. Cohen, dipolar ferromagnetism at 0°K, 397
- Keitel, G. H.**, mode solutions of forward scattering by meteor trails, 234; dipole resonant mode of ionized gas column, 2693
- Keitzer, E.**, with R. J. Duffin, formulae relating equivalent networks, 3664
- Kelleher, K. S.**, dielectric microwave lenses, 2964
- Keller, A.**, auxiliary bridge for loss-factor measurements, 2172
- Keller, J. B.**, reflection and transmission of sound by moving medium, 1273
- with F. G. Friedlander, asymptotic expansions of solutions of $(\nabla^2 + k^2)u = 0$, 398
- Keller, M.**, and M. Ploke, X-ray images made visible by television tube, 1901
- Kelly, J. L., Jr.**, new interpretation of information rate, 3875
- Kelman, V. M.**, and I. F. Krasnov, determination of electron current by use of rubber membrane, 2851
- and S. Ya. Yavor, cylindrical magnetic lenses, 2508
- with I. F. Krasnov, planar diode with limited-width emitting surface, 2852
- with others, electron-optical properties of magnetic gaps, 1178
- Kelner, R. C.**, and M. H. Glauberman, magnetic shift-register correlator, 3286
- Kemp, R. F.**, c.r.o. intensity modulator, 1825
- Kennaugh, E. M.**, radar polarization power scattering matrix, (D)2399
- Kennedy, R. C.**, pedestal processing amplifier for television studio, 3544
- Kennel, J. M.**, with D. S. Hughes, elastic-wave velocity in fused quartz and armo, 1131
- Keohane, K. W.**, and W. K. Metcalf, characteristics of photomultiplier cells, 297
- Keonjian, E.**, micro-power operation of Si transistors, 3898
- Kerner, K.**, electron emission from cold metal surfaces, 2360
- Kerns, D. M.**, with A. C. MacPherson, measurement of s.w.r., 3489
- Kerr, F. J.**, and G. de Vauconleurs, Magellanic clouds, motions of, 1702, masses of, 2709
- Kerr, J.**, and C. Wert, effect of nitrides on coercive force of iron, 482
- Kerr, J. T.**, J. G. V. Taylor and H. E. Duckworth, reliability of atomic masses in Cr-Ge region, 96
- Kersten, M.**, magnetization changes along the hysteresis loop, 498
- Kestelyn-Loebenstein, A.**, emission and conduction of oxide cathodes, 3584
- Kestlin, J.**, and L. N. Persen, error function of complex argument, 2467
- Ketchledge, R. W.**, distortion in feedback amplifiers, 1011
- Key, E. L.**, with R. P. Sallen, designing RC active filters, 2662
- Key, F. A.**, and W. G. P. Lamb, nonlinear RC circuit, 29
- Keyes, R. W.**, effect of pressure on conductivity of InSb, 162; elasto-resistance of n-type Ge, 1450
- Khandekar, P. V.**, with others, PbS point-contact rectifiers, 2560
- Kharkevich, A. A.**, and E. L. Blokh, transmission capacity of communication system, 259
- Khar'yuzov, R. V.**, with S. M. Ryykin, mobility of carriers injected by light, 1082
- Khizhnyak, N. A.**, with Ya. B. Fainberg, anisotropic media, 979
- Khlebnikov, N. S.**, with L. G. Leiteizen, feedback in photoelectron multipliers, 1580
- Khodakov, A. L.**, and others, single crystals of Ba and Sr titanate solid solutions, 3757
- Khurana, B. D.**, ionospheric focusing and image zones, 3512
- Kikuchi, M.**, and Y. Tarui, 'step' phenomena in A-type transistors, 603
- Kilham, L. F., Jr.**, and R. R. Ursch, transformer miniaturization using fluorochemical liquids, 1976
- Kimata, M.**, and T. Nomura, electroluminescence in ZnS, 3754
- Kinase, W.**, interactions among ions of $BaTiO_3$ crystal, 139
- and H. Takahashi, spontaneous deformation of $BaTiO_3$, 1742
- Kinchin, G. H.**, and R. S. Pease, displacement of atoms by radiation, 2034
- King, A. P.**, and E. A. Marcatili, resonance of loosely coupled modes in multi-mode system, 3635
- King, D. D.**, advances in microwave techniques 1954, 1952
- King, G.**, with others, diffusion cathode, 1258
- King, G. A. M.**, electron distribution in ionosphere, 2378
- and C. H. Cummack, electron distribution in ionosphere, 2722
- King, R. E. J.**, oxide cathode, equivalent circuit for, 2586, III characteristics of, 2917
- Kingdom, B. E.**, S-band variable attenuator, 51
- Kingston, R. H.**, review of Ge surface phenomena, 2108
- Kinman, T. H.**, and C. Hayward, crystal cutting, 1441
- and others, Ge and Si power rectifiers, 2885
- Kinney, D. E.**, modified calcium pyrophosphate phosphors, 2079
- Kino, G. S.**, with others, transverse-current travelling-wave valve, 3252
- Kip, A. F.**, with others, plasma resonance in crystals, 1108; cyclotron resonance in Ge-Si alloys, 1456
- Kirby, R. C.**, with others, v.h.f. transmission by scattering in lower ionosphere, 243
- Kircher, R. J.**, and I. P. Kaminow, super-regenerative transistor oscillator, 3002
- Kirchner, F.**, and H. Kirchner, ionization and desorption due to strong fields, 1360
- Kirchner, H.**, with F. Kirchner, ionization and desorption due to strong fields, 1360
- Kirschsteln, F.**, and H. Bödeker, European television transmission network, 274
- Kisselbach, V. J.**, with others, α -ray emission from earth's surface, 3370
- Kita, Y.**, correction factors for concentric slotted lines, 858
- Kitsoopoulos, S.**, photoelectric analogue computer, 30
- Kitunezaki, T.**, with others, divergence factor of wave reflected from ionosphere, 1849

- Kittl, C.**, and A. H. Mitchell, ferromagnetic relaxation and gyro-magnetic anomalies, 2817
 — with others, plasma resonance in crystals, 1108
Klasens, H. A., with A. Brill, phosphors for tricolor television tubes, 783
 — with others, solid-state image intensifiers, 1897
Kleen, W., and K. Pöschl, focusing electron beams by magnetic fields, 618
Kleimack, J. J., with A. J. Wahl, reliability of alloy-junction transistors, 2243
Klein, G., rejection factor of difference amplifiers, 362
Klein, M. L., F. K. Williams and H. C. Morgan, circuits used in digital automation, 2638
Klein, W., and W. Friz, gas-discharge tube for noise measurement, 348-1
Klein, W. P. G., bihelical travelling-wave valve, 2574
Kleinman, D. A., forward characteristic of *p-i-n* diode, 3226
Kleinwächter, H., impedance transformation of linear 2 π -terminal networks, 1995
Klemperer, O., with K. T. Dolder, space-charge effects in electron-optical systems, 1363; h.f. oscillations in space charge of electron emission systems, 3581
Klimeš, B., circle diagram for acoustics, 1286
Kline, M., asymptotic solutions of Maxwell's equations, 1667
Klinger, M. I., Hall effect in ionic semiconductors, 1757
 — with A. G. Samoilovich, theory of semiconductors with impurity band, 3416
Klinker, L., UKW-Fernempfangsbeobachtungen, ihre Bedeutung für Meteorologie und Funktechnik, (B)2878
v. Klitzing, K. H., with J. Gieslesen, Hall effect of InSb at high pressures, 3794
Kloholm, E., with others, ferromagnetism in noble-metal alloys containing Mn, 175
Klopfenstein, R. W., transmission-line taper, 976; optimum transmission-line matching section, (D)3278
 — and J. Epstein, polarguide waveguide filter, 1330
Klotzhaugh, G. A., theory of continuous-tone underwater reverberation, 643
Kluge, W., research on photoelectricity, 68
 — and A. Schulz, reduction of cathode fall of glow discharge, 389
Klyarfel'd, B. N., and others, characteristics of discharge at positive probe, 2686
Kmosko, J. A., and H. G. Johnson, long long Yagis, 1961
Knappe, W., analysis of grid current, 2908
Knappwost, A., smallest size of domains in Co, 484
Knauss, J. A., effect of ocean turbulence on sound propagation, 2931
Knecht, R. W., relations between aurora and sporadic-E echoes, 2390
Knechtli, R. C., and W. R. Beam, electron guns for noncircular spots, 3593
Knight, B. E., application of relaxation methods of computation, 3821
Knight, C. R., E. R. Jervis and G. R. Herd, definition of terms in study of reliability, 2596
Knol, K. S., with H. Groendijk, noise of valves and transistors, 616
 — with others, noise factor of four-terminal networks, 691
Knoop, E., current rise in gas triodes and tetrodes, 639; ignition sensitivity and delay time in gas-filled valves, 1921
Knott, R. D., and J. I. Missen, EW54 Ge-junction rectifier, 1217
Kobayashi, A., and S. Kawaji, adsorption and surface potential of semiconductors, 3788
Kobayashi, D., with others, travelling-wave valves for 4-kMc/s band, 2576
Kobayashi, J., and R. Ueda, X-ray study of ferroelectric PbTiO₃, 786
Kobayashi, M., with others, 40-50-Mc/s overtone quartz units, 2330
Kobayashi, T., D-E layer model from considerations of absorption, 2194
Kobayashi, S., energy-band structure of SiC, 2791
Koch, K. M., galvanomagnetic effects in ferromagnetic materials, 2133
Kocher, G., thermoelectric Benedicks effect, 712
Kocherzhevskii, G. N., radiation of electric vibrator near cylinder, 1624
Kock, W. E., speech bandwidth compression, 2605
Kodman, F. Jr., with others, detection of signals by human and electronic detector, 3609
Koehlin, Y., optical arrangement of scintillation counter, 1516
Koehler, W. C., with E. O. Wollan, magnetic properties of compounds [(1-x)La_xCa]MnO₃, 1114
Koenig, H. P., with others, diffraction of microwaves, 2699
Koester, C. J., with others, X-ray absorption of Te and Se, 1440
Kogan, B. Ya., with others, electronic analogue apparatus of U.S.S.R. Academy of Sciences, 2636
Kogan, S. Kh., theory of helical lines, 2954
Köhler, M., with others, bolometers at low temperatures, 1499
Köhler, W., television microscopy, 3837
Kohlsdorf, E., resonators, wedge-shaped cavity-type, 1, sound absorption by, 3604, coupled vibrations in, 3617
 — with others, optimum reverberation time for studios, 10
Kohn, W., and D. Schechter, theory of acceptor levels in Ge, 808
Kohnke, E. E., and A. W. Ewald, Hall effect in grey tin, 3795
Kojima, H., magnetic behaviour of Fe-Ni compacts, 178
 — with others, effects of Bi₂O₃ on ferrites, 832
Kojima, S., and K. Kato, electron avalanches in gas discharge, 3337
 — with others, observation of nuclear resonances with coaxial-cavity spectrometer, 1696
Kojima, Y., resonance in α -Fe₂O₃, 2132
 — with others, Zeeman effect in NH₃ microwave spectra, 93
Kok, J. A., gas-filled triodes, 2925
Kolb, E. D., with H. E. Bridgers, rate-grown Ge crystals for h.f. transistors, 467
Koller, L. R., voltage drop through phosphor screens and cathodoluminescent lamps, 3756
Kolomenski, A. A., radiation from electron in magnetic field, 2364; synchrotron oscillations due to radiation fluctuations, 3164
Kolomiets, B. T., and N. A. Goryunova, ternary semiconducting systems, 1751
 — with N. A. Goryunova, ternary semiconducting systems, 3417
 — with others, photoconductivity and luminescence of CdS(Cu), 3750
Kolomoets, N. V., with others, semiconductor thermocouples, 2430
Kolotilova, V. G., with E. I. Adirovich, transfer characteristics of semiconductor triodes, 1892; propagation of pulse in semiconductor, 3243
Komar, A. P., N. M. Reinov and S. S. Shalyt, photomagnetolectric effect in Cu₂O at low temperatures, 822
Kompaneets, A. S., and Yu. S. Sayasov, almost conical e.m. resonators, 1640
Kompfner, R., with others, coupled helices, 1612
Kondo, A., with others, travelling-wave valves for 4-kMc/s band, 2576
Kondoh, H., with E. Uchida, magnetic properties of NiTe, 2813
 — with others, magnetic and electric properties of MnTe, 2812
Kondoh, I., with others, magnetic storms, solar phenomena and cosmic-ray storms, 1708
Kondorski, E., and I. Ozhigov, resistance of Fe-Ni alloys in magnetic field, 1777
 — with E. I. Guryvich, relation of magnetic characteristics to thickness of lamination, 1133
König, H. W., noise temperature of space-charge-limited diodes, 947
Kono, T., M. Hirai and Y. Uesugi, diffraction effect of mountains for v.h.f. radio communication, 1859
 — and others, studies on diffracted waves from a mountain, 898
Konorov, P. P., with others, electrical properties of CdTe, 3789
Konorski, B., new theorem on e.s. field, 3328
Konovaleiko, B. M., with others, photoelectric properties of compounds with zinc-blende structure, 2779
Konovalev, V. M., V. I. Kulakov and A. K. Fidirya, conductivity of Bi₂O₃, 3110
Koomen, M., R. Scolnik and R. Tousey, night airglow (OI) 5577A and sodium D layers, 3369
 — with others, altitude of (OI) 5577A line in night airglow, 3368
Koonce, S. E., with L. Egerton, effect of firing cycle on BaTiO₃ ceramics, 1434
Kopte, G., with others, statistical distribution of random electrical processes, 2166
Koptsik, V. A., new piezoelectric crystals, 2770
Korenblit, L. L., and T. Ya. Shraifel'd, theory of high-conductivity semiconductors, 2094
 — with A. G. Samoilovich, degeneracy of electron gas in semiconductors, 2426
Kornetzki, M., relation between hysteresis coefficient and permeability, 3123
 — and H. Burger, ferrite cores with rectangular loops in nonuniform fields, 490
 — and I. Lucas, hysteresis losses in rotating magnetic field, 499
 — J. Brackmann and J. Frey, ferrites with permivar-type hysteresis loops, 489
Korneva, L. A., with V. V. Shuleikin, winds in the ionosphere, 2734
Kornfeld, M., and N. Molokhova, swelling of liquid surface under ultrasonic radiation, 1728
Kornhauser, E. T., with others, propagation of sound pulses in dispersive medium, 1931
Kortman, C. M., transistors telemeter small missiles, 3182
Kosche, E., with others, flying-spot scanning, 2233
Koškarev, D. G., with L. L. Goldin, synchrotron oscillations in strong-focusing accelerators, 1839
Kossel, W., E. Menzel and G. Naumann, junction rectification and crystal orientation, 2809
Koster, J. R., with others, spread F-layer echoes and radio-star scintillations, 2731
Kostetskaya, I. A., with others, Russian bibliography on telemetering, 869
Kostić, V. N., with D. T. Jovanović, distributed amplifier using secondary-emission valves, 1342
Kostina, T. I., with others, galvanomagnetic properties of Bi, 1472
Kotadia, K. M., sporadic echoes from E region over Ahmedabad, 3048
Koustas, P., audio-standard generator, 863
 — and D. D. Mawhinney, magnetron tester detects lost spots, 3498
Kouvel, J. S., specific heat of magnetite crystal, 3806
Kovaly, J. J., with others, detection of signals by human and electronic detector, 3609
Kover, F., with others, preparation and effective masses for InSb, 3108
Koyama, J., with others, travelling-wave valves for 4-kMc/s band, 2576
Kozanowski, H. N., and S. L. Bendell, film requirements and masking techniques for colour television, 3546
Kozlobaev, I. P., BaTiO₃, permittivity of, 788, stability of piezoelectric effect in, 2770
Kraak, W., statistical treatment of reverberation, 3272
Krabbe, U., time constant of transducers, 2318
Krag, W. E., with W. M. Bullis, Hall effect in oriented crystals of n-type Ge, 2112
Krägeloh, W., two-pole function with prescribed complex values, 684
Kramarov, O. P., with others, single crystals of Ba and Sr titanate solid solutions, 3757
Kramer, B., with others, infrared stimulation of photoconductivity in luminescent powders, 131
Kramer, S. I., measurement of amplitude linearity, 3478
Krasil'nikov, V. A., with K. V. Goncharov, thermal oscillations of piezoelectric crystals, 2770

- Krasnov, I. F.**, and V. M. Kel'man, planar diode with limited-width emitting surface, 2852
 — with V. M. Kel'man, determination of electron current by use of rubber membrane, 2851
- Kratz, H. R.**, with others, 300-MeV electron synchrotron, 874
- Kraus, G.**, fading over microwave radio paths, 2206
- Kraus, J. D.**, radio signals from Venus, 3357, 3358
- Kraus, M. H.**, developments in closed-circuit television, 1874
- Krause, H.**, and H. Käding, television outside-broadcast van, 1230
- Kraushaar, W. L.**, magnetic field in vicinity of solar system, 737
- Krausz, R.**, with others, telemetering aerial system for supersonic aircraft, 2623
- Kressin, G.**, with H. Lange, influence of crystal structure on luminescence of calcium silicate, 1067
- Krishnan, K. S.**, and S. C. Jain, thermionic constants of semiconductors, 1887
- Krog, J.**, thermistor hypodermic needle, 3840
- Kröger, F. A.**, physical chemistry of crystal phosphors, 778
 — and D. de Nobel, preparation and electrical properties of CdTe single crystals, 145
 — with others, zone melting of decomposing solids, 145
- Krolzig, A.**, differentiating equalizer for television, 279
- Kromhout, O. M.**, with others, transverse-field travelling-wave valves, 1252
- Kronenberg, S.**, and C. A. Accardo, dielectric changes in inorganic phosphors, 2406
- Kronjäger, W.**, and K. Vogt, fluctuations of direction of arrival of short waves, 1201
- Krook, M.**, with E. P. Gross, collision processes in gases, 3345
- Krösa, A.**, and K. Ganzhorn, transistors in computer technique, 1629
- Krügel, L.**, uniform wide-band cables, 660
- Krumbleg, J.**, and K. H. Jost, investigations on ZnS crystals, 2759
- Krylova, T. V.**, and I. V. Mochan, Nerst effect in Ge, 3437
- Ku, Han-Ying**, with others, cyclotron resonance in Ge-Si alloys, 1456
- Kuchinsky, S.**, with H. Moss, ten-channel time-division multiplexer, 3662
- Kuehn, R. L.**, signal-triggered sweep magnifies pulse widths, 2173
- Kühnel, A. H.**, industrial uses of special-purpose computers, 27
- Kulakov, V. I.**, with others, conductivity of Bi₂O₃, 3110
- Kulcsar, F.**, BaTiO₃ ceramics, 2413
- Kulkowski, R.**, and J. Plebański, optimum characteristics of linear pulse systems, 1327
- Kulin, S. A.**, with others, effect of dislocations on minority carrier lifetime, 2435
- Kumagal, H.**, and others, magnetic resonance in α -Fe₂O₃, 486
- Kümmel, U.**, with K. W. Böer, field breakdown of CdS crystals, 135
 — with others, noise in CdS single crystals, 3792
- Kümmich, R.**, night effect in consol navigation system, 759
- Kundu, P.**, a.m.-f.m. demodulator, 551; f.m. system with asymmetrical 3-phase oscillator, 1650
- Kuper, C. G.**, Bohm-Pines theory of plasma, 3689
- Kurihara, Y.**, trans-horizon microwave propagation over hilly terrain, 234
- Kurnick, S. W.**, and R. N. Zitter, photoeffects in InSb, 2429
- Kurokawa, K.**, with S. Saito, measuring dielectric properties in microwave region, 1156
- Kurokawa, S.**, T. Takahashi and M. Arai, measurement of spurious emissions, 1811
- Kurtz, A. D.**, S. A. Kulin and B. L. Averbach, effect of dislocations on minority carrier lifetime, 2435
- Kurzweil, J.**, with V. Doležal, Mikusiński's operational calculus, 1800
- Kusch, P.**, magnetic moment of electron, 2683
- Kussmann, A.**, and E. Raub, ferromagnetic and antiferromagnetic properties of Au-Mn, 2450
 — and J. H. Wollenberger, powder patterns in high-coercivity alnico, 3805
 — and O. Yamada, coercive force and after-effect of permanent magnets, 2823
- Kuznetsov, P. I.**, R. L. Stratonovich and V. I. Tikhonov, effect of electrical fluctuations on oscillator, 55
- Kuznetsov, V. D.**, aerial system with raised reflector, 3647
- Kvartskhava, I. F.**, effects of high current densities, 3690
 — with others, resistance of metals at high current densities, 456
- Labrousse, R.**, with G. Collette, f.m. radio altimeter, 3069
- LaCasce, E. O., Jr.**, and P. Tamarkin, underwater sound reflection from corrugated surface, 1938
- Ladage, A.**, electron interferences at polished surfaces, 3125
- Ladefrouz, J.**, with J. Peysson, temperature-coefficient of ceramic dielectric capacitors, 3136
- Laeser, P. B.**, colour equipment in television station, 1231
- Laett, H. A.**, video distribution amplifier, 916
- Lagasse, J.**, and J. Lot, e.m. scanning systems for c.r.o., 216
- Lagercrantz, A.**, with T. Bohlin, forming of negative electrode of electrolytic capacitors, 1983
- LaGow, H. E.**, and J. Ainsworth, upper-atmosphere measurements with rockets, 2377
- Lagrenaudie, J.**, dispersion of conductivity of B and Bi₂Al, 804; study of P₂N₃ at low temperatures, 3395
- LaGrone, A. H.**, A. W. Stratton and H. W. Smith, radio signals on overwater paths, 1530
- Lallemant, A.**, and M. Duchesne, star spectra by electronic photography, 3161
- Lamb, W. G. P.**, with F. A. Key, nonlinear RC circuit, 29
- Lambe, J.**, CdS with Ag activator, 1734
- Lamorai, R.**, measurement of absorption coefficients, 966
 — and R. Trenbasky, new acoustic characterization of rooms, 3619
- Lampard, D. G.**, with A. M. Thompson, theorem in electrostatics and application to capacitance standards, 2837
- Lampert, M. A.**, plasma oscillations at extremely high frequencies, 1681; incidence of e.m. wave on Čerenkov electron gas, 3035
- Landauer, R.**, D. R. Young and M. E. Drougard, polarization reversal in BaTiO₃, 3759
 — with others, Hall effect and conductivity in porous media, 3761
- Landmark, B.**, and others, ionospheric observations during solar eclipse, 3379
- Lane, J. A.**, measurement of power at 3 cm λ , 525; film radiometer for cm λ , 1829
- Lane, P. E.**, with W. A. Prowse, breakdown of gases in crossed fields, 2024
- Lane, R. N.**, absorption of chairs and carpet in auditoria, 1945
 — and E. E. Mikeska, acoustical requirements for music-school buildings, 1293
 — with others, objective and subjective observations on music rooms, 11
- Lang, A. R.**, and D. A. G. Broad, electron optics of X-ray tubes, 3847
- Läng, F.**, generation of frequencies in mobile transmitters and receivers, 3882
- Lange, C. F.**, with others, infrared absorption in Si and Ge, 2433
- Lange, F. H.**, anode self-modulation, 2900
- Lange, H.**, and G. Kressin, influence of crystal structure on luminescence of calcium silicate, 1067
 — with H. Dziergwa, luminescence of calcium silicate (Mn, Pb) and zinc-beryllium silicate (Mn), 136
 — with K. Mellentin, magnetometer for measurements on ferromagnetic sheet, 213
- Lange, O. H.**, with E. G. C. Burt, function generators for analogue computing, 2301
- Lange, T.**, natural frequencies of horns, 1608
- Lange-Hesse, G.**, geomagnetic activity and F₂ critical frequencies, 117, 3380
- Langner, G.**, adjustable permanent-magnet electron lenses, 1842
- Langsdorff, W.**, low-frequency amplifiers with transformers in feedback path, 1659
- Langton, N. H.**, and E. E. Gunn, field of dielectric-heating work circuit, 3843
- Lant, R.**, tone reproduction with electronically cut stencils, 2190
- La Pierre, W.**, magnetic amplifiers as control components, 363
- Lapin, S. P.**, and J. J. Suran, impulse noise in f.m. receivers, 2523
- Laport, E. A.**, and K. L. Neumann, low-power s.s.b. system, 1545
 — with others, system parameters using tropospheric scatter propagation, 567, 3185
- Larach, S.**, and R. E. Shrader, electroluminescence from boron nitride, 3081
- Larenz, R. W.**, plasma streaming and charge segregation, 3346
- Lark-Horovitz, K.**, with H. Fritzsche, properties of p-type InSb at low temperatures, 160
- Larsen, H.**, and H. E. Martin, distortion of test pulses over coaxial cables, 3142
- Lasbleis, F.**, with others, low-temperature study of ferroelectric phosphates and arsenates, 1738
- Lashinsky, H.**, Čerenkov radiation from electron beams, 3350
- Lashkarev, V. E.**, and V. I. Lyashenko, surface conductivity of copper oxide, 2117
- Laub, H.**, and W. Stöhr, horn-parabola wide-band aerials, 2628
- Laudet, M.**, magnetic electron lens causing no image rotation, 1513; electron optics of cylindrical systems, 2187
- Lauter, E. A.**, interference due to atmospheres, 3868
 — with K. Sprenger, observations of lower ionosphere during solar eclipse, 2062
- Lautz, G.**, and W. Ruppel, resistance variation of Ge in magnetic field, 2796
 — with others, bolometers at low temperatures, 1499
- Laver, F. J. M.**, point-to-point radiocommunication systems, 565
 — and H. Stanesby, reciprocal transmission over long-distance radio circuits, 1857
- Law, H. B.**, standard-frequency transmission equipment at Rugby, (D)515
- Law, J. T.**, and C. G. B. Garrett, surface properties of Ge, 3431
 — and P. S. Meigs, effect of water vapour on Ge and Si junctions, 805
- Law, T. S.**, with A. G. Milnes, a.c.-controlled transducers, 2317
- Lawley, L. E.**, and R. D. C. Reed, absorption of ultrasonics in liquids, 1603
- Lawn, F.**, thyatron inverter, 1556
- Lawson, J. D.**, launching surface waves, 974
 — and others, high-power demountable klystron for X band, 944
- Lawson, J. L.**, with others, 300-MeV electron synchrotron, 874
- Lawson, W. D.**, and others, preparation, electrical and optical properties of Mg₂Sn, 145
- Lax, B.**, and K. J. Button, new ferrite mode configurations, 325, in rectangular waveguide, 324
 — and J. G. Mavroides, Ge and Si with warped energy surfaces, 1759
 — with R. N. Dexter, cyclotron absorption in Bi, 1471
- Lax, M.**, and E. Burstein, broadening of impurity levels in Si, 1086
- Lax, P. D.**, Cauchy's problem for hyperbolic equations, 1801
- Leadabrand, R. L.**, with others, aspect-sensitive radio reflections from ionosphere, 1527
- Leak, H. J.**, and A. B. Sarkar, e.s. loudspeakers, 3627
- Leakey, D. M.**, and R. B. Gilson, ultralinear output transformers, 677
 — with F. H. Brittain, 2-channel stereophonic sound systems, 1946, 2607
- Lebeau, A.**, with P. A. Blum, elimination of slow variations in recording geomagnetic pulsations, 1402
- Lebedev, N. N.**, with others, e.n. field of linear radiator inside parabolic reflector, 3650

- Leblond, A.**, interdigital line, operating near π mode, 1908, u.h.f. magnetron using, 1909
- Leblond, André**, equations of propagation of carriers in junction crystal, 1750; I/V characteristic of semiconductor $p-i-p$ structure, 2776
- and R. Gentner, semiconductor structure for h.f. oscillations, 1888
- Le Bot, J.**, with others, low-temperature study of ferroelectric phosphates and arsenates, 1738
- Le Caine, H.**, electronic music, 2183
- Leck, J. H.**, and A. Riddoch, cold-cathode ionization gauge, 3073
- Leconte, A.**, radar system for harbour surveillance, 1727
- Le Couteur, K. J.**, and S. Lipton, nonlinear regenerative extraction of synchrocyclotron beams, 1508
- A. V. Crewe and J. W. G. Gregory, extraction of beam from Liverpool synchrocyclotron, 873
- LeCraw, R. C.**, with R. F. Sullivan, ferrite microwave switch, 679
- with others, microwave measurements on ferrite spheres, 2846
- Le Croisette, D. H.**, production of pulse of high-velocity electrons, 3492
- Ledig, G.**, comparison of transistor and valve, 2001
- Ledinegg, E.**, transmission of pulses at cm λ , 344
- and P. Urban, cavity resonators with non-orthogonal boundaries, 685
- Ledrus, R.**, M. Hoyaux and A. Vanavermaete, plasmograph for studying electric discharges, 532
- Lee, C. A.**, diffused-base Ge transistor, 1891
- Lee, E. W.**, magnetostriction and magneto-mechanical effects, 2142
- Lee, R.**, and N. E. Mullinix, transformer design chart, 2312
- Lees, J.**, and S. Walton, influence of pressure on metal/Ge contacts, 1095; surface states on Ge, 1767
- Legvold, S.**, with others, magnetic properties of erbium, 1787
- Lehman, G. W.**, and H. M. James, interaction of impurities and mobile carriers in semiconductors, 1749
- Lehmann, R.**, audiometer standardization, 3612
- Lehmann, W.**, frequency dependence of electroluminescence, 2082; dielectric behaviour of electroluminescent ZnS, 2411
- Leigh, R. C.**, crystal band-elimination filter, 3674
- Leighton, H. I.**, and D. E. Billings, solar H_{α} filaments and geomagnetic disturbances, 1399
- Lellich, H. O.**, development of magnetic-drum stores, 1629
- with others, computer at Munich (PERM), 1311
- Leinbach, H.**, with others, distribution of auroras in Alaska, 1722
- Leisner, W.**, portable R/T sets in industry, 1550
- Leisterer, R.**, Fourier representation of beat oscillation, 3203
- Leiteizen, L. G.**, and N. S. Khlébnikov, feedback in photoelectron multipliers, 1580
- Lermann, I.**, small automatic computers at Dresden, 2634
- Lermasson-Lucasson, A.**, L spectra of Ga and Ge, 3436
- Le Montagner, S.**, and others, low-temperature study of ferroelectric phosphates and arsenates, 1738
- Lengyel, B. A.**, with A. D. Berk, magnetic fields in ferrite bodies in microwave cavities, 347
- Lenov, N. N.**, with I. S. Bruk, electronic differential analyser, 3285
- Lenze, J.**, Rechenentwicklungen in der mathematischen Physik, (B)198
- Lent, S. J.**, with A. V. Lord, high-frequency counter, 3310
- Lenz, K. L.**, with others, resistance of sheets, strips etc. at 10 c/s—100 kMc/s, 1634
- Leon, H. I.**, fixed-path, variable-frequency acoustic interferometer, 1285
- Leonhard, J.**, R. D. Mattuck and A. J. Pot6, folded unipole aerials, 1616
- Le Page, M.**, with others, low-temperature study of ferroelectric phosphates and arsenates, 1738
- Lepechinsky, D.**, 'Q.L.'-'Q.T.' transition level in ionosphere, 3188, influence on E-layer soundings of, 893
- Le Poole, J. B.**, with A. C. van Dorsten, Type-EM75kV electron microscope, 1841
- Leitch, H. R.**, special winches for Schwarzenburg s.w. aerial installation, 327
- Le Roux, E.**, with others, eclipse of Crab nebula, 2711
- Leslie, R.**, transistor amplifier for radar, 3322
- Leslie, W. H. P.**, digital differential, 2319
- with W. Grimmond, batching and counting using decade tubes, 1981
- Letaw, H., Jr.**, W. M. Portnoy and L. Sliifkin, self-diffusion in Ge, 3429
- Levell, D. A.**, telegex system of air navigation, 762
- Lever, R. F.**, with M. Davis, crystal growth of Ge from germane, 3777
- with others, zone melting by electron bombardment, 2147
- Levesque, P.**, and L. Gerlach, metallography of ferrites, 3453
- Levin, B.**, transformations of Fourier and Laplace types, 2149
- Levin, G. A.**, with V. K. Turkin, detection of f.m. oscillations, 2521
- Levin, G. Ya.**, with others, resistance of superconducting tin at 7.3×10^{10} c/s, 1776
- Levin, J. B.**, portable precision approach radar, 126
- Levin, M. L.**, induced thermal noise in aerials, 3638; effect of surface curvature on radiation from source, 3702
- Levine, D. J.**, with W. Sichak, microwave high-speed continuous phase shifter, 321
- Levine, S.**, with others, anomalous polarization in BaTiO₃, 3400
- Levine, S. W.**, and A. B. Welch, electronic engraving, 2190
- Levitan, G. I.**, design of rectifiers with electron stabilization, 273
- Levitas, A.**, Ge-Si alloys, 812
- Levy, L.**, higher pentode gain, 3008
- Lévy, P.**, integration of nonlinear equation, 2468
- Lewin, L.**, with G. Craven, microwave filters with $\lambda/4$ couplings, 1645
- Lewis, B.**, and E. A. D. White, Na-Cd niobates, 3401, solid-solution effects and ferroelectricity in, 2087
- Lewis, H. W.**, with others, new low-temperature ferromagnets, 3804
- Lewis, I. A. D.**, transmission-line devices for $\mu\mu$ s pulses, 60
- Lewis, J. B.**, folded monopoles in aerial arrays, 1620
- Lewis, L. R.**, diffraction pattern in plane of half-screen, 3704
- Lewis, T. J.**, field emission, mechanism of, 75; factors influencing, 1026, from irregular surfaces, 1362, theoretical interpretation of experiments on, 2690
- Ley, G. S.**, colour purity in ingated sequential displays, 3549
- Li, Yin-Yuan**, magnetic-moment arrangements in antiferromagnetic compounds, 1116; domain walls in antiferromagnets, 2815; superexchange interactions of rhombohedral sesquioxides, 3447
- Liberman, A. M.**, with others, acoustic loci and transitional cues for consonants, 9
- Libois, L. J.**, time-sharing systems for regional links, 3878
- Lichtman, D.**, r.f. attenuators, 1647
- Liebetegger, A.**, circuits with nonlinear resistance, 687
- Liebmann, G.**, magnetic electron lenses, asymmetrical, 880, pinhole-type, 881, unified representation of properties of, 882
- Liebson, S. H.**, infrared quenching of CdS, 1060
- Lied, F.**, with others, ionospheric observations during solar eclipse, 3379
- Lifshits, I. M.**, and S. I. Pekar, equations of electrons at surface of crystal, 372
- M. Ya. Azbel' and M. I. Kaganov, galvanomagnetic phenomena in metals, 3021
- Light, L. H.**, and P. M. Hooker, transistor d.c. converters, 573
- Likhter, A. I.**, with L. F. Vereshchagin, dependence of Hall effect in Bi on pressure, 500
- Lilienstein, M.**, magnetic-amplifier design, 1343
- Limann, O.**, 90°-phase-shift circuit, 2645
- Lind, A. H.**, and B. F. Melchionni, optical multiplexing in television film equipment, 3233
- Linder, E. G.**, with others, electron-voltaic effect in $p-n$ junctions, 2437
- Lindner, P.**, with others, flying-spot scanning, 2233
- Lindroth, K.**, reflection of e.m. waves from metal strips, 1731
- Linhart, J. G.**, Cerenkov radiation, 1004
- I. M. Templeton and R. Dunsuir, resonant-cavity method for measuring resistivity, 2158
- Linn, H. J.**, and K. Pöschel, complex correlation coefficient, 2832
- Linville, J. G.**, and R. H. Mattson, junction-transistor blocking oscillators, 356
- and L. G. Schimpf, design of tetrode transistor amplifiers, 3684
- Lion, K. S.**, mechanic-electric transducer, 3159
- Lippert, W. K. R.**, filter theory of periodic structures, 46
- Lipson, H. G.**, E. Burstein and P. L. Smith, optical properties of deformed Ge, 154
- Lipton, S.**, with K. J. Le Couteur, nonlinear regenerative extraction of synchrocyclotron beams, 1508
- Little, A. G.**, with others, absorption of 3-5-m radiation in nebula NGC 6357, 1395; r.f. emission from novae and supernovae, 2708
- Little, C. G.**, W. M. Rayton and R. B. Roof, ionospheric effects at v.h.f. and u.h.f., 3519
- Littlewood, C. A.**, with others, radio observations of ionosphere at oblique incidence, 1850
- Litvinenko, I. A.**, with N. A. Tolstoi, measurement of quantity of light in luminescence processes, 1804
- Liu, Vi-Cheng**, Pitot-method of upper-atmosphere measurements, 3366
- with others, upper-air density by falling-sphere method, 3723
- Livesley, R. K.**, with others, analysis of nonlinear feedback systems, 3223
- Livingston, M. S.**, High-Energy Accelerators, (B)1188
- Lo, A. W.**, with J. A. Rajchman, transituxor, 1637
- Löbl, O.**, electrical and magnetic units, 1354
- Locke, A. S.**, and others, Guidance, (B)3183
- Locke, W. N.**, and A. D. Booth, Machine Translation of Languages: Fourteen Essays, (B)2867
- Lockett, G. E.**, design of nuclear-reactor control mechanisms, 3838
- Locquin, M.**, phase contrast and interchromatic contrast in electron microscopy, 2507
- Lodge, J. A.**, with others, photomultiplier pulse durations and shapes, 298; half-tone charge-storage tubes, 2590
- Loeb, L. B.**, Basic Processes of Gaseous Electronics, (B)3353
- Loeber, A. P.**, and E. A. Hiedemann, investigation of ultrasonic waves by light refraction, 1941
- Loebner, E. E.**, opto-electronic devices and networks, 931; thermo-electric power etc. of carbons, 2783
- Loeckx, J.**, amplitude modulation via pentode suppressor grid, 3237
- Loev, D.**, and others, magnetic-core circuits for digital systems, 1313
- Loferski, J. J.**, optimum semiconductor for photovoltaic solar-energy conversion, 3769
- with others, $p-n$ junctions, electron-voltaic effect in, 2437, GaAs, photovoltaic effect in, 2566
- Logan, R. A.**, precipitation of Cu in Ge, 1090; thermally induced acceptors in Ge, 2793
- and M. Schwartz, restoration of resistivity in Ge, 1094
- Logue, J. C.**, with G. D. Bruce, experimental transistorized calculator, 2305
- Lohff, J.**, and H. Raether, electron emission from metal surfaces, 1027
- Lombardi, P.**, Galileo Ferraris National Electrotechnical Institute, 957
- Lombardo, J. L.**, radar warning net, 1728
- Long, D.**, effect of pressure, on InSb, 161, on semiconductors, 2424
- Longini, R. L.**, temperature dependence of carrier lifetime, 3098
- and R. F. Greene, ionization interaction between impurities in semiconductors, 3409
- with J. P. McKelvey, recombination of carriers at dislocation edges, 461
- Longuet-Higgins, M. S.**, statistical properties of moving waveform, 3326
- Lopukhin, V. M.**, and Yu. D. Samorodov, graphical method for investigating travelling-wave valves, 2256
- Lord, A. V.**, and S. J. Lent, high-frequency counter, 3310

- with others, suppressed-frame system of telerecording, 918
- Loshakov, L. N.**, nonlinear phenomena in waveguide with electron beam, 2914
- Loth, H.**, resistances for electronic apparatus, 1629
- Loucks, H. L.**, casting resins for electronic components, 2829
- Loud, W. S.**, periodic solutions of Duffing's equation with damping, 2153
- Loudette, F.**, and A. Charru, polarimetric study of ferrite, 3636
- Loughead, R. E.**, compressible ionized fluids, oscillations of, 721, hydromagnetic flow of, 723; hydromagnetic stability of current layer, 722
- Lovell, A. C. B.**, radio astronomy and the atmosphere, 2368; interpretation of transient echoes from ionosphere, 2713
- with J. G. Davies, Giacobinid meteor stream, 410
- Low, G. G. E.**, surface conductance of Ge in pulsed fields, 1768; trigger circuits for rectangular pulses, 2000
- Low, W.**, with Z. Geller, amplification of 1-cm waves in He negative glow, 715
- with others, influence of alternating electric fields on light emission of phosphors, 446
- Lowan, A. N.**, cooling of upper atmosphere after sunset, 1406
- Lowe, C. E.**, time-voltage pulse discriminator, 1486
- Lowe, R. F.**, with W. E. Evans, quadriphase time-division multiplexing, 566
- Luborsky, F. E.**, with others, permanent-magnet properties of elongated iron particles, 826; effect of shape anisotropy on coercive force, 1460
- Lubszynski, H. G.**, with others, half-tone charge-storage tubes, 2590
- Lucas, I.**, with M. Kornetzi, hysteresis losses in rotating magnetic field, 499
- Luchet, A.**, K index at Kerguelen and Heard Island, 103
- Lüders, G.**, betatron oscillations in strong-focusing synchrotron, 1509
- Ludwig, G. W.**, and R. L. Watters, drift mobility in Si, 2790
- with R. L. Watters, minority-carrier lifetime in Si, 3094
- Luebbert, W. F.**, systems approach to electronic reliability, 2268
- Lueg, H.**, six-terminal-network curve, 3302
- and F. Gemmel, dielectric constant of loss-free solid bodies, 210
- and H. K. Ruppersberg, dielectric constants of very small amounts of material, 2160
- Lukaszewicz, L.**, a.m.-a.m. multiplier, 2306
- Lukaszewicz, L. B.**, constant-frequency oscillators, (D)2996
- Lundquist, S.**, subharmonic oscillations in a nonlinear system, 1374
- Lunelli, L.**, reactive energy in dipole, 39; impedance of two-terminal network, 3295
- Lur'e, I. E.**, with others, capacitance analyser of sound field, 964
- Luscombe, G. W.**, with others, v.h.f. propagation by ionospheric scattering, 1860
- Lusher, G. V. G.**, with F. A. Benson, effects of heater-voltage variations in stabilizers, 576
- Luther, A. C., Jr.**, stabilization of pulse duration in monostable multivibrators, 357
- Luttinger, J. M.**, cyclotron resonance in semiconductors, 3421
- and R. R. Goodman, cyclotron resonance of holes in Ge, 1092
- Lyamshev, L. M.**, diffraction of sound by thin plate, 309
- Lyashenko, V. I.**, with V. E. Lashkarev, surface conductivity of copper oxide, 2117
- Lyon, A. J.**, and A. J. G. Moorat, accurate height measurements using ionospheric recorder, 3046
- with E. V. Appleton, ionospheric layer formation under quasi-stationary conditions, 755
- with others, detection of S_q current system in ionosphere, 1049; distortion of E layer by electrical currents, 752
- Lyon, R. H.**, correlation functions in continuous media, 1934
- Lyubarski, G. Ya.**, with A. I. Akhiezer, theory of coupled cavity resonators, 2655
- MacAdam, D. L.**, new look at colorimetry, 1558
- Macario, R. C. V.**, with F. W. Chapman, propagation of a.f. radio waves, 3192
- MacDonald, A. D.**, and J. H. Matthews, breakdown in argon at u.h.f., 3693
- MacDonald, D. K. C.**, and L. T. Towle, integrals in metallic conductivity, 3691
- Macek, O.**, test-signal generator for television, 1489
- Machery, R.**, BULL electronic computer 'GANMA 3', 1629
- Mack, C. L.**, diversity reception in u.h.f. long-range communications, 254
- MacKay, D. M.**, high-speed analogue computing techniques, (D)2968
- Mackintosh, I. M.**, photon-radiative recombination in PbSe, PbTe and PbS, 2121; InSb, effects at grain boundaries in, 2804, magnetoresistance anomalies in, 2805
- and J. W. Allen, lifetime of carriers in InSb, 1773
- with J. W. Allen, implications of small energy gap and electron mass in InSb, 145
- MacLarty, B. N.**, with C. F. Booth, new h.f. station at Rugby, 2538
- Macmillan, D.**, with G. L. Zomber, fuel cut-off control for guided missiles, 1186
- MacNichol, E. F., Jr.**, and J. A. H. Jacobs, measuring reciprocal time intervals, 1828
- MacPherson, A. C.**, and D. M. Kerns, measurement of s.w.r., 3489
- MacPherson, C.**, with N. Friedman, cardioid microphone, 970
- Maddock, A. J.**, servo-operated recording instruments, 3830
- Madelung, O.**, L. Tewardt and H. Welker, magnetic blocking layer in semiconductors, 2100
- Madhavan, P.**, with S. K. Chatterjee, propagation of microwaves on single wire, 16
- Maeda, H.**, daily variations in F_2 region on magnetic equator, 2064; variations of conductivity of upper atmosphere, 1719
- K. Maeda and M. Hirono, geomagnetic distortion in ionosphere, 425
- with M. Hirono, distortion of F_2 region on magnetic equator, 424
- with others, geomagnetic variations during solar eclipse, 2045
- Maeda, K.**, with others, geomagnetic distortion in ionosphere, 425
- Maeda, K. I.**, geomagnetic distortion in F_2 layer, 755
- Maggiore, F.**, with C. Egidì, parasitic radiations from television receivers, 2237
- Maginnis, F. J.**, with others, oscillations of coupled windings, 1636
- Magun, S.**, with others, Van de Graaff generator with liquid charge carrier, 915
- Maher, T.**, with others, balloon-borne system for tracking sun, 3844
- Major, D.**, F. R. Perry and K. Phillips, 20-meV betatron for X-ray therapy, 876
- Majorana, O.**, importance of r.f. radiation from Jupiter, 407
- Makar, D. R.**, and H. T. Francis, self-balancing zero-resistance ammeter, 2168
- Makow, D.**, stable v.f.o., 3306
- Malakhov, A. N.**, ferroresonant stabilizer of voltage fluctuations, 914
- Malecki, I.**, use of ultrasonics in mining and geology, 1501
- Malessan, P.**, with others, depolarization of cells containing MnO_2 , 1872
- Malik, M. C.**, with H. Rakshit, frequency of RC-coupled oscillator, 1998
- Mallory, K. B.**, with H. Motz, generation of submillimetre waves, 1036
- Malmberg, C. G.**, and A. A. Maryott, dielectric constant of water, 2159
- Malsch, J.**, transistors, 602
- Malvano, R.**, with others, electric constants of thin films, 2418; modulation of conductivity by surface charges in metals, 2421
- Malyuzhinetz, G. D.**, emission of sound by wedge, 306
- Mamikonov, A. G.**, measurement of resistance of water and solutions, 520
- Manavalan, L. S.**, with others, timing device and nonlinear units for differential analyser, 2637
- Mancianti, M.**, bridge for measurement of differential resistance, 2854
- Mandel, L.**, light gain in image intensifiers, 871
- Mandelbrot, B.**, theory of pre-correction of transmission errors, 907
- Manfield, H. G.**, dip soldering, 2928
- Manfrino, R.**, surface preparation and resistivity measurements on semiconductors, 1100
- Mani, A. M.**, with others, radar observations of rain at Poona, 127
- Manley, J. M.**, and H. E. Rowe, properties of nonlinear elements, 2988
- Manning, L. A.**, with others, meteor ionization trails, in extended-range v.h.f. propagation, 236, oblique reflections from, 3509
- Manooglan, H. A.**, with A. A. McKenzie, telemetering—electronic data transmission, 2189
- Mansfield, R.**, magnetoresistance effect in InSb, 145; impurity scattering in semiconductors, 2103
- Mansfield, W. V.**, with others, probability distribution of constant vector plus Rayleigh-distributed vector, 197, 234
- Manus, C.**, and others, nuclear magnetic resonance in weak fields, 1694
- with others, flicker noise of Ge diodes, 1576
- Many, A.**, D. Gerlich and E. Harnik, carrier-deficit phenomena in Ge, 1096
- and others, recombination on Ge surfaces, 2442
- Marayama, H.**, with K. Hirao, instruments for observation of v.h.f. fading, 854
- Marcattili, E. A.**, with A. P. King, resonance of loosely coupled modes in multi-mode system, 3635
- March, N. H.**, with B. Donovan, h.f. conductivity in semiconductors, 3411
- Marcuse, D.**, energy exchange in surface-wave lines, 2615
- Margerum, D. L.**, with others, telemetering aerial system for supersonic aircraft, 2623
- Margoninski, Y.**, with others, recombination on Ge surfaces, 2442
- Mariani, F.**, theory of photoionization for nonisothermal atmosphere, 749; electron density in nonisothermal ionosphere, 3727
- with P. Dominici, ionosphere F layer, 750
- Marique, J.**, waveform of radiotelegraph signals, 2522; response of radio spectrometers, 3153
- Marks, G. W.**, variation of acoustic velocity with temperature in liquids, 6
- Marmo, F. F.**, with others, formation of lower ionosphere, 1407
- Marquet, S.**, mathematical study of Boltzmann's equation, 1668
- deMars, G. A.**, with others, surface states on Si and Ge surfaces, 2434
- Marshall, J. F.**, with others, conductivity induced in MgO crystals by electron bombardment, 158; dependence of secondary-electron emission on angle of incidence of primaries, 3343
- Marshall, W.**, spin-wave theory of antiferromagnetism, 726
- Martin, A. V. J.**, television receiver with continuously variable tuning, 1563; measurement of physical constants by elastic vibrations, 2177; producing h.f. pulses of large amplitude, 3000
- Martin, D. H.**, with L. F. Bates, domain structures in alnico, 176; domain nucleation in Si iron, 2452
- Martin, D. W.**, acoustics of electronic organ, 1283
- R. L. Murphy and A. Meyer, articulation reduction by combined distortion, 3607
- Martin, E. E.**, with others, temperature-and-field emission from tungsten, 392; electron emission from clean tungsten, 1912
- Martin, G. E.**, and J. S. Hickman, directional properties of plane radiators with bizonal shading, 1281
- Martin, H.**, delay equalizer for television transmission, 2227
- Martin, H. E.**, with H. Larsen, distortion of test pulses over coaxial cables, 3142
- Martin, L. H.**, with others, variable-energy cyclotron, 229
- Martin, L. T. J.**, with E. D. R. Shearman, back-scatter ionospheric sounder, 3197

- Martin, M. B.**, and D. L. A. Smith, magnetic recording equipment for stereophonic reproduction, 1609
- Marton, C.**, with others, electron physics tables, 2682
- Marton, L.**, *Advances in Electronics and Electron Physics*, Vol. VII, (B)3265
- C. Marton and W. G. Hall, electron physics tables, 2682
- D. C. Schubert and S. R. Mielczarek, electron-optical image of atomic beam, 2861
- J. A. Simpson and T. F. McCraw, electron scattering measurements, 849
- Marty, B.**, with C. Fert, use of cylindrical lens in reflection electron microscope, 1182
- Marty, R. S.**, E. M. Davies and P. J. Franklin, printed resistors, 35
- Martyn, D. F.**, interpretation of F_2 'winds' as ionization drifts associated with magnetic variations, 755; F_2 region, survey of present knowledge of, 755, geomagnetic anomalies of, 755, ionization distribution in, 2727; height and ionization changes at maximum of Chapman region, 755
- Marx, G.**, with P. S. Faragó, quantum effects in interaction between electrons and fields, 393
- Maryott, A. A.**, and G. Birnbaum, microwave absorption in compressed oxygen, 734
- with C. G. Malnberg, dielectric constant of water, 2159
- Marzullo, S.**, with others, dielectric properties in system MgO-CaO-SnO₂-TiO₂, 191; properties of piezoelectric ceramics, 1073
- Mashkova, E. S.**, secondary emission from Cs₃Sb, 3787
- Mashovets, T. V.**, and S. M. Ryykin, effect of heat treatment on lifetime of carriers in Ge, 2794
- Mason, D. E.**, A. A. Shephard and W. M. Walbank, Si-junction power diodes, 3889
- Mason, J. H.**, breakdown of solid dielectrics in divergent fields, 189
- Mason, S. J.**, docile behaviour of feedback amplifiers, 2669; feedback theory using signal flow graphs, 2985
- Mason, W. P.**, with others, dislocations etc. of crystal quartz, 2826, experimental evidence for, 842
- Masonson, M.**, error reduction in Tacan, 3386
- Masumi, T.**, with others, photocurrent of CdS in magnetic field, 2756
- Masuzawa, K.**, with others, stabilization of Type-MR-103 capacitor microphone, 2276; application of titanium to acoustic instruments, 3810
- Mataré, H. F.**, grain-boundary structure and carrier transport in semiconductors, 3086; electrical behaviour of bicrystal interface layers, 3764
- Mathews, W. D.**, with W. G. Royce, d.c. decade amplifier, 3315
- Mathieu, J. P.**, L. Couture and H. Poulet, optical spectrum of piezoelectric crystals, 1063
- Mathis, V. P.**, with others, transistor test equipment, 526
- Matossi, F.**, dependence of light amplification in phosphors on light intensity, 375
- and S. Nudelman, electroluminescence excited by pulses, 374; electrophotoluminescence effects, 2763
- with S. Nudelman, electroluminescence output of ZnS phosphors, 2410
- Matras, J.**, architectural acoustics, 3615
- Matricon, M.**, with others, Faraday effect in plasma, 732
- Matsuo, Y.**, multi-beam frequency multiplier, 1255
- Matsushita, S.**, F_2 variations and geomagnetic disturbances at equatorial zone, 755; sequential E_s, 2052
- Matthews, J. H.**, with A. D. MacDonald, breakdown in argon at u.h.f., 3693
- Matthews, R.**, reliability as design and maintenance problem, 3247
- Matthias, B. T.**, with others, guanidine aluminium sulphate hexahydrate, 2415; new low-temperature ferromagnets, 3804
- Mattler, J.**, electroluminescence of ZnS, 2409
- with others, effect of electric fields on X-ray-excited phosphors, 2081
- Mattson, R. H.**, with J. G. Linvill, junction-transistor blocking oscillators, 356
- Mattuck, R. D.**, with others, folded unipole aerials, 1616
- Matusche, H.**, measurement of voltage ratios using dry rectifiers, 203
- Matveev, A. N.**, synchrotrons with strong focusing, 3165; synchrotron oscillations in strong-focusing systems, 3504
- Matveev, O. A.**, with others, electrical properties, of ZnTe, 3439, of CdTe, 3789
- Matz, S.**, transient phenomena in ferrite, 1135
- Maurice, R. D. A.**, visibility of noise over grey scale, 1234
- Mavroides, J. G.**, with B. Lax, Ge and Si with warped energy surfaces, 1759
- Mawardi, O. K.**, measurement of acoustic impedance, 2941
- Mawhinney, D. D.**, with P. Koustas, magnetron tester detects lost pulses, 3498
- Maxwell, A.**, investigation of F-region drift movements by observations of radio star fading, 755
- Maxwell, B.**, mechanical engineering of dielectrics, 1145
- Maxwell, D. C., Jr.**, with others, aerosoloscope counts particles in gas, 1836
- May, E. G.**, with others, miniature loudspeakers, 2277
- May, E. J. P.**, with E. R. Broad, 10-kW low-pass-filter, 47
- Mayer, C. G.**, colour television in U.S.A., 581
- Mayer, F.**, correction for line losses in microwave impedance measurements, 206; magnetic rotatory polarization in Cu ferrite, 1792; transitions from rectangular to circular waveguide, 2957
- Mayer, G.**, and J. Gigon, measurement of elastic constants using ultrasonics, 867
- Mayer, H.**, Q factor of piezoelectric crystals, 523, 2479, variation with pressure of, 3668
- Mayer, L.**, electron mirror microscopy, 884
- Mayer, S. E.**, with others, Ge diffused-junction photocell, 615
- Maynard, F. B.**, binary adder uses gas-discharge triode, 3261
- Mayo, C. G.**, and J. W. Head, impedance concept, 2309
- Mayo, G.**, with F. A. Benson, glow-discharge tubes, running-voltage/current characteristics of, 952, impedance/frequency characteristics of, 1920
- Mayr, S.**, matrix representation of complex vectors, 847; parallel-connected nonlinear impedances, 1974
- Mays, J. M.**, with others, nuclear magnetic resonance in InSb and GaSb, 1107
- McCaig, M.**, with J. E. Gould, production of anisotropy in permanent magnet, 828
- McCall, D. W.**, with others, nuclear magnetic resonance in InSb and GaSb, 1107
- McCarrell, S.**, noise-factor nomograph, 553
- McCarthy, J. A.**, with others, digital memory in barrier-grid storage tubes, 1262
- McCarthy, K. A.**, and S. S. Ballard, thermal conductivity of Ge, 474
- McCluffe, J. W.**, field dependence of magnetoconductivity, 2685
- McConnell, R. A.**, and W. F. Mruk, microacoustic interferometer, 226
- McCoubrey, A. O.**, with others, mm-wave absorption in superconducting Al, 2354
- McCoy, R., Jr.**, with S. D. Bedrosian, normalized filter design, 1646
- McCraw, T. F.**, with others, electron scattering measurements, 849
- McCue, J.**, with H. H. Theissing, λ measurement in mm region, 1827
- McDonnell, D.**, and W. R. Perkins, stability of closed-loop pulsed radar circuits, 269
- McDowell, C. A.**, with J. D. Craggs, ionization by electron impact, 2019
- McDowell, M. V.**, with others, wide-band absorbing materials, 1470
- McDuffie, T. E.**, spectrum analyser for quartz crystals, 202
- McElhinny, M. W.**, with M. E. Szendrei, solar eclipse 25th December 1954, 2061, recombination in F layer during, 3733
- McFarlane, W.**, S. E. Barden and D. L. Oldroyd, Glasgow 340-MeV synchrotron, 538
- McFolin, R. L.**, with N. Sclar, sawtooth pulser gives voltage/current curves, 862
- McGee, J. D.**, C.P.S. emitron, 591
- McGee, R. X.**, O. B. Slee and G. J. Stanley, galactic survey at 400 Mc/s, 735
- McGuire, J. H.**, high-impedance current-generating circuits, 695
- McKay, K. G.**, with A. G. Chynoweth, photon emission from avalanche breakdown in Si, 3096
- McKelvey, J. P.**, drift-mobility measurements in semiconductors, 2777
- and R. L. Longini, recombination of carriers at dislocation edges, 461
- McKenzie, A. A.**, and H. A. Manoogian, telemetering—electronic data transmission, 2189
- McKerrow, C. A.**, decrease in atmospheric noise during cosmic-radiation storm, 3059
- McKinley, D. W. R.**, radar-echo duration and height of Perseid meteor, 2040; radio determination of meteor velocities, 3716
- with P. M. Millman, meteor echo durations and visual magnitudes, 2039
- McLean, D. A.**, and F. S. Power, Ta solid electrolytic capacitors, 2982
- McLean, F. C.**, A. N. Thomas and R. A. Rowden, Crystal Palace television station, 3895
- McMann, R. H., Jr.**, with K. E. Mullenger, correction circuits for colour TV transmitters, 2232
- McManus, J.**, with A. L. Albin, interference control in aircraft, 1539
- McNamara, A. G.**, radar investigations of aurora, 428
- McNicol, R. W. E.**, with J. A. Thomas, automatic recording of direction of arrival of radio waves, 543
- McNitt, J. R.**, forward scatter applications, 3185
- McQuarrie, M.**, structural behaviour in (Ba, Ca, Sr) TiO₃ and relation to dielectric characteristics, 2084; domain processes in BaTiO₃, 2765
- McSkimin, H. J.**, propagation of waves in cylindrical rods, 2933
- McSweeney, R.**, v.h.f. radio link in West Indies, 2536, 3218
- McWhirt, R. B.**, wide-band amplifier for u.h.f. receivers, 700
- Meadows, R. W.**, reciprocal transmission conditions over ionospheric path, 1856
- Meakins, R. J.**, with J. S. Cook, dielectric absorption in pinacol hydrate, 1475
- Mealy, G. H.**, synthesizing sequential circuits, 28
- Meaney, F. M.**, with B. R. Bean, refractivity gradient and tropospheric propagation, 241
- Medhurst, R. G.**, r.f. bandwidth of multiplex systems, 1547
- and G. F. Small, echo distortion in f.m. frequency-division multiplex, 1867, (D)3214
- Medina, L.**, corona discharges in h.v. air capacitors, 1805
- Meecham, W. C.**, distribution of energy reflected from periodic surface, 2698; Fourier-transform method for reflection from irregular surfaces, 2938
- Meek, J. H.**, and F. S. Hector, recording magnetic variometer, 105
- Meiboom, S.**, with B. Abeles, galvanomagnetic effects in Bi, 2141
- Meigs, P. S.**, with J. T. Law, effect of water vapour on Ge and Si junctions, 805
- de Meij, S.**, rubber as electrical conductor, 1143
- Meikle, J. B.**, and B. Graham, electrons produce high-temperature dielectric, 2464
- Meiklejohn, W. H.**, and C. P. Bean, new magnetic anisotropy, 3803
- Meinel, E.**, German Post Office overseas station at Elmshorn, 3535
- Meinke, H.**, symbols used in communication engineering, 2270; synthesis of quadrupoles from lines with continuous non-uniformities, 2990
- and H. Groll, transmission of radar displays, 3744
- Meinzel, J.**, E. Daniel and Y. Colin, lattice defects and absorption of e.m. radiation by Cu₂O, 2446

- with others, influence of light on absorption of e.m. radiation by Se, 2431
- Meinell, Y. J.**, J. Meinell and Y. Balcou, influence of light on absorption of e.m. radiation by Se, 2431
- Meissner, H.**, with others, electron emission from superconductors, 3340
- Meissner, W.**, Benedicks effect, 713
- and R. Doll, very-high-sensitivity screened galvanometer, 1160
- Meixner, J.**, and F. W. Schäfer, Mathiesche Funktionen und Sphäroidfunktionen, (B)511
- Melamed, N. T.**, with R. Bowers, luminescent centres in ZnS:Cu:Cl phosphors, 776
- Melchioni, B. F.**, with A. H. Lind, optical multiplexing in television film equipment, 3233
- with K. Sadashige, control of light in television projectors, 589
- Melchor, J. L.**, W. P. Ayres and P. H. Vartanian, energy concentration in ferrite-loaded waveguides, 1615
- with P. H. Vartanian, broadband microwave frequency meter, 1496
- with others, frequency doubling in ferrites, 2138
- Mellen, G. L.**, and others, u.h.f. long-range communication systems, 263
- Mellentin, K.**, and H. Lange, magnetometer for measurements on ferromagnetic sheet, 213
- Melrose, J.**, with others, detection of signals by human and electronic detectors, 3609
- Meltzer, B.**, J. A. Lodge and P. L. Holmes, photomultiplier pulse durations and shapes, 298
- Melvin, H. M.**, concavity of resistance functions, 3292
- Melvin, M. A.**, and S. Edwards, Jr, theory of vibrations, 2597
- Menard, H. W.**, with others, acoustic properties of shallow-water sediments, 1930
- Menarry, A.**, with A. W. Hanson, electronic presentation of optical diffraction patterns, 2180
- Mendel, J. T.**, microwave detector, 2259
- Mendelsohn, L. I.**, F. E. Luborsky and T. O. Paine, permanent-magnet properties of elongated iron particles, 826
- with others, effect of shape anisotropy on coercive force, 1460
- Menstell, L.**, with others, h.f. interference by 380-kV installations, 2212
- Mentzer, J. R.**, Scattering and Diffraction of Radio Waves, (B)3354
- Menzel, D. H.**, Fundamental Formulas of Physics, (B)1392
- Menzel, E.**, W. Stössel and M. Otter, single crystals with pure surfaces, 1140
- with others, junction rectification and crystal orientation, 2809; intergrowth of Cu and Cu₂O, 3442
- Menzel-Kopp, C.**, with others, intergrowth of Cu and Cu₂O, 3442
- Mercer, D. M. A.**, with K. W. Goff, probe microphone analysis and testing, 1296
- Mercier, C.**, theory of molecular pumps, 3075
- Mercier, R.**, with others, flicker noise of Ge diodes, 1576; nuclear magnetic resonance in weak fields, 1694
- Meredith, L.**, with others, altitude of (O) 5577A line in night airglow, 3368
- Mermoud, R.**, investigation of oscillating quartz by X-ray diffraction, 1473
- Merritt, F. R.**, with others, ferromagnetic resonance in Ni-Fe ferrites, 492; frequency dependence of magnetocrystalline anisotropy, 835; quantum effects in cyclotron resonance, 1093
- Merten, R.**, impedance and admittance surfaces, 2641
- Merz, W. J.**, with J. P. Kemeika, guanidine vanadium sulphate hexahydrate, 2772
- with others, guanidine aluminium sulphate hexahydrate, 2415
- Mesnard, G.**, and L. Eyraud, electromechanical properties of BaTiO₃ ceramics, 2083
- and K. Uzan, thermionic emission from sintered mixtures, 945; effect of Zr on sintered oxide cathodes, 946; sintered capillary cathodes, 3585
- Metcalf, W. K.**, with K. W. Keohane, characteristics of photomultiplier cells, 297
- Metson, G. H.**, and D. J. Sargent, electron bombardment of valve envelope, 2588
- Mette, H.**, slide-wire cylinder for measurement of very high resistances, 3473
- Meyer, A.**, with others, articulation reduction by combined distortion, 3607
- Meyer, E.**, and H. Severin, absorption of cm-λ waves, 3037
- Meyer, G.**, electromechanical analogies, 67
- Meyer, H. J. G.**, interaction of excitons with lattice vibrations, 2705
- Meyer, K.**, Xerist effect in ferromagnetic metals, 94; theory of Hall effect in ferromagnetic alloys, 3117
- Meyer, W.**, television in open-cast mining, 585
- Meyer, W. E.**, 5th-order aperture aberration in electron microscopes, 3171
- Meyer de Stadelhofen, J.**, interference radiation from f.m. receivers, 3826
- Meyer-Brötz, G.**, 4-terminal-network parameters of junction transistor, 3563
- Meyers, R. A.**, and H. B. Davis, triangular-wave analogue multiplier, 3287
- de Mezer, J.**, with others, solar r.f. radiation during eclipse, 3363
- Michalik, E. R.**, with M. Goldstein, scattering of light by inhomogeneous solid, 1353
- Michel, K.**, with E. Ganz, climatic influences in development of electronic equipment, 3598
- Michels, W. C.**, and B. T. Doser, rating-scale method for loudness measurements, 1292
- Miehle, W.**, with others, magnetic-core circuits for digital systems, 1313
- Mielczarek, E. V.**, with H. P. R. Frederikse, thermoelectric power of InSb, 813
- Mielczarek, S. R.**, with others, electron-optical image of atomic beam, 2861
- Mihran, T. G.**, with G. M. Branch, plasma-frequency reduction factors in beams, 3573
- Mikaelyan, A. L.**, dielectric and magnetic permeabilities of artificial media, 140; rectangular waveguide containing ferrite, 323; application of electron plasma in non reciprocal systems, 663
- and A. A. Pistol'kors, e.m. waves in magnetized ferrite, 20
- Mikeska, E. E.**, with R. N. Lane, acoustical requirements for music-school buildings, 1293
- Mikhailov, I. G.**, with V. A. Solov'ev, theory of compound piezoelectric vibrator, 2770
- Mikhalevski, V. S.**, and D. N. Venerovski, generation of oscillations by travelling-wave valve, 1591
- Milch, A.**, bit storage via electro-optical feedback, 3289
- Miles, V. G.**, resolution of radar pulse, 764
- Miller, R. F.**, diffraction of e.m. wave by plane screen, 2366
- Miller, W.**, with others, high-power demountable klystron for X band, 944
- Milliea, M. F.**, and C. T. Tomizuka, melting patterns on InSb crystals, 1774
- Miller, C. W.**, linear acceleration of particles, 878
- Miller, D. H.**, with others, 300-MeV electron synchrotron, 874
- Miller, L.**, adsorption of NH₃ on Si, 3426
- Miller, L. E.**, negative-resistance regions in characteristics of transistor, 1243
- and J. H. Forster, accelerated aging with Li-doped transistors, 1242
- Miller, M. A.**, surface waves in rectangular channels, 2956
- Miller, R. D.**, with others, 300-MeV electron synchrotron, 874
- Miller, S. L.**, avalanche breakdown in Ge, 471
- and J. J. Ebers, alloyed-junction avalanche transistors, 293
- Millet, J.**, secondary-emissive Ni-Be alloy, 800
- Millian, K.**, and W. Rieder, contact resistance and surface of contact, 2461
- Milligan, W. O.**, with J. T. Richardson, magnetic properties of NiO, 3798
- Millman, P. M.**, and D. W. R. McKinley, metor-echo durations and visual magnitudes, 2039
- Mills, B. D.**, and W. W. Wright, rating valves for use under abnormal conditions, 937
- Mills, B. Y.**, radio emission from bright galaxies, 736; radio source near galactic centre, 3713
- A. G. Little and K. V. Sheridan, absorption of 3.5-m radiation in nebula NGC 6357, 1395; r.f. emission from novae and supernovae, 2708
- Milnes, A. G.**, and T. S. Law, a.c.-controlled transducers, 2317
- Minwright, A. L. P.**, microwave harbour beacon, 124
- Minakova, I. I.**, and K. F. Teodorovich, synchronization of oscillations, 2333
- Minden, H. T.**, with R. H. Harada, photosensitization of PbS films, 3751
- Mindlin, R. D.**, and H. Deresiewicz, vibrations of crystal plates, 1322
- Minikowski, J. M.**, and E. S. Cassedy, cross-section of collinear arrays, 2627
- Minnis, C. M.**, brightening of solar limb in far ultraviolet, 412; electron production in E layer, 753; new index of solar activity, 1397; recombination coefficients during eclipse, 3377; ionospheric measurements during eclipses, 3378
- with A. M. Humby, asymmetry in performance of radiotelegraph circuits, 3208
- with A. F. Wilkins, arrival angle of h.f. waves, 1200
- Miranda, H. A., Jr**, with others, α-ray emission from earth's surface, 3370
- Miró, I.**, with others, plan for television in Spain, 2230
- Mishchenko, M. T.**, with A. I. Andrievski, growth of Cu₂O crystals at high temperature, 2799; occlusions of CuO in Cu₂O layers, 3105
- Misme, P.**, interference fading caused by frontal discontinuities, 2207; measurement of atmospheric refractive index with radiosonde M11, 3367
- Missen, J. I.**, with R. D. Knott, EW54 Ge-junction rectifier, 1217
- Missio, D.**, microwave measurements on dielectrics, 207
- Mitchell, A. H.**, with C. Kittel, ferromagnetic relaxation and gyro-magnetic anomalies, 2817
- Mitchell, A. M. J.**, and G. Phillips, measurement by nuclear resonance of light-water concentration, 2502
- Mitchell, A. R.**, round-off errors in finite-difference methods, 3466
- Mitchell, E. W. J.**, infrared Faraday effect in semiconductor, 1022
- Mitra, A. P.**, lunar semidiurnal oscillation in ionospheric absorption, 116; relative D- and E-region absorption, 2048
- Mitra, H.**, radar observations of thunderstorms, 765
- Mitra, R. K.**, with others, ionosphere during solar eclipse, 2732
- Mitra, S. N.**, self-gyromagnetic interaction, 755; triple splitting over Delhi, 895
- and R. B. L. Srivastava, analysis of sky-wave field intensity, 1852
- Mitsuhashi, H.**, and T. Nakayama, spectral response of photoelectric surface, 3568
- Mitui, T.**, and S. Miyahara, influence of magnetic field on precipitation of Cu-Co, 1782
- Miura, T.**, transmission quality and transmission characteristic for Japanese, 312
- Miwa, H.**, counting-rate ratio meter, 3850
- Miya, K.**, and S. Kanaya, radio propagation prediction considering scattering, 235; lateral deviation of radio waves, 3508
- Miyahara, S.**, with T. Mitui, influence of magnetic field on precipitation of Cu-Co, 1782

- Miyake, K.**, effect of electron bombardment on emission of Cs-Sb, 1429
- Mizuno, H.**, with T. Nagata, S_g field in polar region, 2044
- Mochan, I. V.**, *Nernst-Ettingshausen effect in Te*, 1756
— with T. V. Krylova, *Nernst effect in Ge*, 3437
- Mogensen, A.**, theory of reactive nondissipative L-sections, 1328
- Mohanti, H. B.**, and A. D. Booth, electronic Fourier synthesizer, 987
- Mohanti, S. R.**. See Mohanty, S.R.
- Mohanty, S. R.**, influence of light on gas discharge, 74; disappearance of adsorbed gases under electrodeless discharge, 1358
- Moir, J.**, phase shift and sound quality, 1606
- Moiseiwitsch, B. L.**, with D. R. Bates, Meinel hydroxyl system in night airglow, 3042
- Mokrovski, N. P.**, and A. R. Regel', temperature dependence of conductivity of liquid Te-Se, 3419
- Moldovanova, M.**, effect of temperature of oxidation on conductivity of Cu_2O -Cu system, 159
- Molgedey, G.**, with others, noise in CdS single crystals, 3792
- Moll, J. L.**, junction-transistor electronics, 924
— and I. M. Ross, transistor parameters and base-layer resistivity, 1244
— and others, *p-n-p-n* transistor switches, 3899
- Möllenstedt, G.**, 100-keV electrons in e.s. electron microscope, 1514
- Möller, H. G.**, oblique-incidence experiments over 1320 km, 3858
— with others, echo sounding of ionosphere at oblique incidence, 1414
- Molloy, E.**, and W. E. Pannett, *Radio and Television Engineers' Reference Book*, (B)1268
- Molokhova, N.**, with M. Kornfeld', swelling of liquid surface under ultrasonic radiation, 1278
- Mönch, G. C.**, variation of Volta potential with temperature, 2351
- Monelli, R.**, gain of transistors, 1241
- Monfils, A.**, with J. Duchesne, r.f. absorption spectra of piezoelectric solids, 455
- Mongodin, G.**, and F. Prevot, experimental study of molecular pump, 2752
— with others, diffusion pump using freon 12, 3393
- Monroe, R. B.**, C.B.S. television colour studio 72, 1232
- Montagnani, S.**, radio-link network, 2535
- Montalenti, G.**, with A. Ferro, influence of carbon in iron and iron alloys, 1463
- de Montgareuil, P. Guérin.** See Guérin de Montgareuil, P.
- Montgomery, H. C.**, with others, noise in Si *p-n*-junction photocells, 1900
- Montroll, E. W.**, and R. B. Potts, effects of defects on lattice vibrations, 1042
- Moody, N. F.**, Si-junction-diode modulator, 1663
- Moon, P.**, and D. E. Spencer, Ampère force, 1371; differential equations of field theory, 3820
- Moon, P. B.**, space charge in constant-gradient synchrotrons, 2186
- Moorat, A. J. G.**, with A. J. Lyon, accurate height measurements using ionospheric recorder, 3046
- Moore, A. R.**, and H. Nelson, surface treatment of Si, 2439
- Moore, D. G.**, with others, resistivity of vitreous ternary lead silicates, 2827
- Moore, G. E.**, L. A. Wooten and J. Morrison, excess Ba content of oxide cathodes, 302
— with others, excess Ba in oxide cathodes, 301
- Moore, R. C.**, with others, status of 'apple' receiver circuits, 3893
- Mooser, E.**, magnetic susceptibility of electrons and holes in semiconductors, 1747
— and W. B. Pearson, new semiconducting compounds, 2091; chemical bond in semiconductors, 2781, 3422
— with T. M. Dauphinee, measuring resistivity and Hall coefficient of semiconductors, 201
- Morant, M. J.**, and H. House, work function and patch field of metal surface, 2023
- Moravcsik, M. J.**, and J. M. Sellen, Jr, gas scattering in strong-focusing synchrotron, 1840
- Morgan, H. C.**, with others, circuits used in digital automation, 2638
- Morgan, M. G.**, and G. Mck. Alcock, observations of whistling atmospherics, 1724
— and H. E. Dinger, observations of whistling atmospherics, 1724
— and W. C. Johnson, polarization of h.f. sky wave at vertical incidence, 755
- Morgulis, N. D.**, ionization method of producing very high vacuum, 2751
— and V. M. Gavriluk, influence of adsorbed film on work function, 3027
— and Yu. G. Ptushinski, diffusion of impurity atoms in oxide cathode, 1914
- Morilleau, E.**, with others, photomultiplier tube for scintillation counting, 299
- Morin, F. J.**, and T. H. Geballe, conductivity and Seebeck effect in Ni ferrite, 173
— with others, Hall effect and conductivity of InSb, 1772; chemical interactions among defects in Ge and Si, 3092
- Moriyama, F.**, with others, solar enhanced region at $\text{cm-}\lambda$ from eclipse observations, 2043
- Moroz, E. M.**, cyclotron with sectional magnet, 3503
- Morris, D.**, response functions and vector loci, 690
- Morrish, A. H.**, and S. P. Yu, coercive force of iron-oxide powders, 170; measurements on ferrite particles near single-domain size, 3455; torsion balance for microscopic magnetic particle, 2155
- Morrison, J.**, with others, excess Ba content of oxide cathodes, 302
- Morrison, S. R.**, slow surface reaction on Ge, 3778
- Morrow, C. T.**, and D. E. Riesen, shock spectrum computer, 1969
- Morrow, W. E.**, with others, u.h.f. long-range communication systems, 263
- Mortenson, K. E.**, and C. J. Truax, screen-room measurements, 3471
- Morton, C.**, balance detector with automatic protection, 1162
- Morton, G. A.**, with M. L. Schultz, photoconduction in Ge and Si, 772
- Morton, J. Y.**, with others, impedance measuring set, 3149
- Moseley, D. S.**, anisotropy of polarized BaTiO_3 , 789
- Moser, H.**, with J. Fischer, approximate representation of magnetization curves, 3459
- Moser, H. M.**, and J. J. Dreher, phonemic confusion vectors, 652; effects of training on listeners, 1290
- Mosetti, F.**, method of analysing periodicity, 2010
- Moss, H.**, and S. Kuchinsky, ten-channel time-division multiplexer, 3662
- Moss, T. S.**, photovoltaic and photoconductive theory applied to InSb, 145; lead-salt photoconductors, 773; measurements on *p-n* junctions in PbS, 816
— and T. H. Hawkins, recombination radiation from InSb, 2807
- Motz, H.**, and K. B. Malloy, generation of submillimetre waves, 1036
- Moulton, S. W.**, with others, beam-indexing colour-television display system, 3893
- Mourier, G.**, with B. Epsztajn, phase velocities in systems with periodic structure, 1907
- Moussard, A. M.**, with others, MnO_2 as depolarizer, 1219
- Mowbray, G. H.**, J. W. Gebhard and C. L. Byham, sensitivity to changes in interruption rate of white noise, 1943
- Moyano Reina, F.**, Spain and frequency modulation, 2882
- Mruk, W. F.**, with R. A. McConnell, microacoustic interferometer, 226
- Muchmore, R. B.**, and A. D. Wheelon, line-of-sight propagation phenomena, ray treatment, 234
— with A. D. Wheelon, line-of-sight propagation phenomena, scattered components, 234
- Mueller, C. W.**, and N. H. Dirick, planar alloy junctions for Ge transistors, 2562
- Mues, G.**, with others, starting of gas discharge in a.c. field, 3338
- Mühleisen, R.**, atmospheric electricity over continents, 2389
- Mukherjee, S. C.**, with H. Rakshit, frequency of coincidence of two sets of pulses, 902
- Mukhopadhyay, S. K.**, absorption of ultrasonics in water, 2932
- Mullaly, R. F.**, graphical constructions for ray tracing, 755
— with P. C. Clemmow, dependence of refractive index on direction of wave normal, 755
- Mullenger, K. E.**, and R. H. McMann, Jr, correction circuits for colour TV transmitters, 2232
- Müller, C.**, method for solving Fredholm equations, 1802
- Müller, E. W.**, field desorption, 3330
— and K. Bahadur, field ionization at metal surface, 3329
- Müller, F.**, far field of paraboloid of revolution, 3651
- Müller, H. G.**, with others, starting of gas discharge in a.c. field, 3338
- Müller, J.**, standardization of measurements for television, 1879
- Müller, J. J.**, pulse multiplex R/T system in Greece, 1207
- Müller, K. A.**, with G. Busch, Mn impurity centres in grey tin, 478
- Müller, M.**, design of electron guns for high-space-charge beams, 1911
- Müller, R.**, space-charge waves in electron streams, 1583
- Müller-Lübeck, K.**, multipurpose meter, 220
- Mullinix, N. E.**, with R. Lee, transformer design chart, 2312
- Muncey, R. W.**, with A. F. B. Nickson, matching for surfaces of acoustic models, 2947
- v. Münch, W.**, with H. Salow, switching transistor, 3244
- Muncy, J. H.**, N.B.S. preferred-circuits program, 2324; Handbook Preferred Circuits, Navy Aeronautical Equipment, NAVAER 16-1-519, (B)3016
- Mungall, A. G.**, noise in travelling-wave valves, 3578
- Münster, A.**, and K. Sagel, electrical properties of TiN and TiC, 2447
- Murai, N.**, with others, influence of infrared rays on photoconductivity of CdS, 130
- Murakami, T.**, and R. W. Sonnenfeldt, detectors in symmetric- and asymmetric-sideband systems, 1566
- Muramatsu, K.**, with Y. Aono, field intensity of ground wave over mixed paths, 542
- Murphy, E. L.**, and R. H. Good, Jr, thermionic and field emission, 3694
- Murphy, R. L.**, with others, articulation reduction by combined distortion, 3607
- Murray, C. T.**, and D. L. Hollway, equipment for solving field problems, 1819
- Murray, R. B.**, with others, crystalline fields and antiferromagnetic transitions, 1370
- Müser, H. A.**, thermoelectric force of illuminated ZnS, 2403
- Muss, D. R.**, capacitance of alloyed In-Ge diodes, 1575
- Musset, E.**, A. Nikuradse and R. Ulbrich, breakdown field strength in dielectric liquids, 2463
- Mustel', E. R.**, c.m. oscillations in parabolic tube, 2656
- Muth, H.**, and G. Ulbricht, portable R/T sets, 1550
- Mutscher, H.**, with others, optimum reverberation time for studios, 10
- Myers, H. P.**, with R. G. Butters, structure and magnetic properties of Mn_3AlC , 168
- Nag, B. D.**, and A. M. Sayied, theory of Čerenkov effect, 3700
- Nagai, S.**, with others, application of titanium to acoustic instruments, 3810
- Nagaraja, N. S.**, effect of component tolerances in selective amplifiers, 1339
— and V. Rajaraman, effect of component tolerances in selective amplifiers, 3682
— with others, timing device and nonlinear units for differential analyser, 2637
- Nagata, T.**, and S. Abe, distribution of SC^* in high latitudes, 106
— and H. Mizuno, S_g field in polar region, 2044
— and others, effect of solar eclipse on ionosphere, 1716

- Naismith, R.**, oblique transmission by meteoric E layer, 2871
- Nakagomi, Y.**, with others, solar corona and geomagnetism, 2042
- Nakai, J.**, and S. Nakamura, surface treatment of core metal for cathodes, 631
- Y. Inuishi and Y. Tsung-Che, electron emission, conduction and noise of oxide-coated cathodes, 629
- Nakamura, K.**, effects of infrared on emission of ZnS:Cu phosphors, 443
- Nakamura, S.**, with J. Nakai, surface treatment of core metal for cathodes, 631
- Nakamura, T.**, with others, photoelectric studies of night sky light, 1714
- Nakamura, Y.**, magnetization and magnetostriction of Ni single crystals, 1786
- Nakata, Y.**, and H. Fujita, eigenvalues of free plate, 962
- with H. Uyeda, selective fading on f_{et} traces, 3863
- with others, effect of solar eclipse on ionosphere, 1716
- Nakayama, T.**, with H. Mitsuhashi, spectral response of photoelectric surface, 3568
- Nalos, E. J.**, with M. Chodorow, design of high-power travelling-wave valves, 2570
- Nalot, J.**, with others, carmatron wide-band oscillator, 620
- Nampoothy, N. S.**, and R. V. G. S. Rao, X-ray studies of mica, 3816
- Naqvi, A. M.**, and J. N. Tandon, identification of radio stars, 1394
- Narasimhan, V.**, with S. Parthasarathy, performance of quartz oscillator in liquids, 1602
- Naschke, E.**, magnetic dispersion of iron, 3448
- with J. Benoit, permeability of conductors at high frequency, 2307
- Nathan, A.**, note on bandwidth, 2660
- Nathmann, G.**, with others, junction rectification and crystal orientation, 2809
- Neale, D. M.**, with R. J. Hercoc, shutter tester using photoelectric integrator, 889
- Neaves, A.**, with D. ter Haar, thermal conductivity and thermoelectric power of semiconductor, 3771
- Nedderman, H. C.**, space-charge distribution in magnetron, 1584
- Néel, L.**, energy of Bloch walls in thin layers, 130
- Negishi, K.**, with Y. Torikai, method for visualization of ultrasonic fields, 2273
- Neitzert, C.**, with others, magnetic pulse modulators, 36
- Nelson, H.**, with A. R. Moore, surface treatment of Si, 2439
- Nelson, R. C.**, cyanine dyes, photoconductivity of, 2401, sensitization of photoconductivity in CdS by, 2402
- Nemet, A.**, and W. F. Cox, intensification of X-ray image, 2510
- Nenohi, M.**, with others, transmission of microwaves over sea, 3861
- Neporent, B. S.**, and P. P. Feoflow, 4th symposium on luminescence, 2679
- Neprimerov, N. N.**, remarks on Sajikhov's work, 186
- Neretina, N. A.**, with others, characteristics of discharge at positive probe, 2686
- Nesbitt, E. A.**, and H. J. Williams, shape and crystal anisotropy of alnico 5, 825
- with others, Co ferrite heat-treated in magnetic field, 1788
- Nestel, W.**, 2½ years of German television, 278
- Nettel, D. F.**, digital methods in control systems, 1834
- with S. K. Dean, digital potentiometer, 1314
- Neubert, T. J.**, with M. Burton, effect of neutron bombardment on graphite, 3424
- Neuman, M.**, with others, dynamics of ionized media, 2361
- Neumann, H.**, measurement of magnetization curve, 212
- Neumann, K. L.**, with E. A. Laport, low-power s.s.b. system, 1545
- Newell, G. F.**, and J. G. Spencer, photographic records of effect of noise on television picture, 1234
- with others, v.h.f./u.h.f. field-strength recording receiver, 3528
- Newman, P.**, with others, v.h.f. tropospheric overwater measurements far beyond horizon, 234
- Newman, R.**, properties of In-doped Si, 150; visible light from Si p - n junction, 1088
- H. H. Woodbury and W. W. Tyler, photoconductivity in Mn-doped Ge, 3435
- with W. C. Dash, optical absorption in Ge and Si, 465
- Newsome, J. P.**, Q-meter method for very low reactance, 522; measurement of self-capacitance of inductor, 3475
- Neyman, M. S.**, designing waveguides and oscillatory systems, 17
- Niccolai, L.**, Italian coaxial network, 262
- Nicholson, S. B.**, and O. R. Wulf, diurnal variation of geomagnetic fluctuations, 1403
- Nickson, A. F. B.**, sound amplification in reverberant spaces, 1605
- and R. W. Muncy, matching for surfaces of acoustic models, 2947
- Nicolet, M.**, nitrogen oxides, aeronomic problem of, 747, and airglow, 1405
- with J. Hunaerts, ionospheric results during eclipses, 1412
- Nicoll, F. H.**, high-transconductance gun for kinescopes, 1597
- and B. Kazan, large-area photoconductive cells using CdS powder, 612
- with B. Kazan, electroluminescent light-amplifying panel, 933
- Nicoll, G. R.**, noise in Si microwave diodes, (D)601
- Nidey, R. A.**, and D. S. Stacey, photoelectric angular-error sensors, 3162
- Nielsen, I. L.**, with J. Hansen, Copenhagen television station, 1569
- Nielsen, S.**, with others, preparation, electrical and optical properties of Mg₂Sn, 145
- Niese, H.**, sound pulses for acoustic measurements, 3267
- Niessen, K. F.**, resonance in nearly compensated ferrimagnetic, 2814
- Nii, R.**, with Y. Kanai, impurity conduction in Ge, 2792
- Niimi, T.**, temperature dependence of capacitance of Cu₂O rectifier, 270
- Nijo, T.**, miniaturization of circuit parts, 2008
- Nikitine, S.**, and R. Reiss, spectra of semiconductors, 2099
- Nikuradse, A.**, with others, breakdown field strength in dielectric liquids, 2463
- Nilan, T. G.**, with W. S. Paxton, domain configurations in grain-oriented Si steel, 169
- Nisbet, A.**, source representations for Debye's $v.m.$ potentials, 1372
- Nishikori, K.**, with others, studies on diffracted waves from a mountain, 898
- Nishioaka, A.**, optical observation of first-order transition of BaTiO₃, 452
- Nitta, K.**, with others, photoelectric phenomena with copper phthalocyanine, 2428
- Niutta, A.**, a.f.c. in frequency-shift radiotelegraphy, (D)2209
- Nixon, J. D.**, and P. C. Banbury, surface lifetime in Ge in electric fields, 3099
- Nixon, R. D.**, testing c.r. tubes, 1919
- de Nobel, D.**, and D. Hofman, dielectric constant of CdTe, 3790
- with C. Z. van Doorn, luminescence and width of energy gap of CdTe, 3440
- with F. A. Kröger, preparation and electrical properties of CdTe single crystals, 145
- Noble, W. J.**, focusing effect in velocity gradient, 729
- Nomura, T.**, with M. Kimata, electroluminescence in ZnS, 3754
- Nomura, Y.**, and K. Takaku, propagation of e.m. waves in inhomogeneous atmosphere, 545
- Nordberg, W.**, with others, atmospheric temperatures and winds, 2376
- Norris, V. J.**, frequency-multiplier klystron, 2915
- Northrop, D. C.**, and O. Simpson, electronic properties of aromatic hydrocarbons, 2093
- Norton, K. A.**, point-to-point relaying via tropospheric scatter, 3185
- P. L. Rice and L. E. Vogler, propagation through turbulent atmosphere over irregular terrain, 242
- and others, probability distribution of constant vector plus Rayleigh-distributed vector, 197, 234; fading in propagation through turbulent atmosphere, 250
- Noton, A. R. M.**, with J. F. Coales, on-off servomechanism, 3222
- Nottebohm, H.**, noise in amplifier with negative feedback, 3009
- Notuki, M.**, Y. Nakagomi and M. Fukatsu, solar corona and geomagnetism, 2042
- Novikov, A. I.**, with others, Russian bibliography on telemetering, 869
- Novosiltsev, N. S.**, O. I. Frokopal and A. F. Yatsenko, fusion of BaTiO₃ by conduction, 2770
- Novozhenov, G. F.**, determining power of pulse generator, 211
- Noxon, J.**, with others, distribution of auroras in Alaska, 1722
- Nudelman, S.**, and F. Matossi, electroluminescence output of ZnS phosphors, 2410
- with F. Matossi, electroluminescence excited by pulses, 374; electrophotoluminescence effects, 2763
- Oatley, C. W.**, with J. C. Firmin, effects of metal electrodes in electron-bombardment conductivity, 843
- with A. N. Ince, properties of electroluminescent phosphors, 782
- with K. C. A. Smith, scanning electron microscope, 1179
- Obayashi, H.**, with others, field strength of wave reflected from ionosphere, 900
- Obayashi, T.**, movements of irregularities in E region, 418, 2051
- Oberhettinger, F.**, asymptotic series in diffraction theory, 2348
- Obi, C.**, almost-periodic solutions of nonlinear differential equations, 1480
- O'Brien, R. S.**, with W. B. Whalley, colour video switching, 2554
- Ochsenfeld, R.**, Fe-Ni alloys, mechanical damping in, 1783, magnetoelastic properties of, 1785
- O'Connell, J.**, with L. J. Giacoletto, variable-capacitance junction diode, 2559
- O'Dell, T. H.**, three-terminal null networks, 3672
- O'Dwyer, M. T.**, with E. N. Farrar, R/T for control of works transport, 570
- Oetjen, R. A.**, with H. Yoshinaga, optical properties of InSb, 2118
- Ogata, Y.**, observation of ionospheric drift, 3730
- with others, F₂-layer multiple reflections, 894; field strength of wave reflected from ionosphere, 900
- Ohl, G.**, 'frequency microscope', 3493
- with others, quartz clocks at the Physikalisch-Technische Bundesanstalt, 3468
- Ohl, R. S.**, with others, solid-state detector for low-energy ions, 2181
- Okada, J.**, dislocations along grain boundaries in Ge crystals, 1761; effects of dislocations on minority-carrier lifetime in Ge, 2440
- Okada, K.**, with others, energy dissipation of conduction electrons, 3020
- Okada, S.**, node and mesh determinants, 44
- Okamura, T.**, H. Kojima and S. Watanabe, effects of Bi₂O₃ on ferrites, 832
- with others, Zeeman effect in NH₃ microwave spectra, 93
- Okashimo, K.**, with J. R. Wait, patterns of stub aerials, 2624
- Okaya, A.**, Stark-modulation m-m-λ spectrograph, 1389
- Okazaki, S.**, and H. Oki, noise in Ge, 1454
- O'Keefe, J.**, initial-value problem for wave equation, 2151
- Oki, H.**, with S. Okazaki, noise in Ge, 1454
- Okuda, T.**, with K. Yamamoto, floating-probe method for measurement of ionized gas, 2687
- Oldroyd, D. L.**, with others, Glasgow 340-MeV synchrotron, 538
- O'Leary, M. G.**, wide-band television aerials, 2295
- Oleson, N. L.**, with S. Watanabe, travelling density waves in positive columns, 714
- Olin, I. D.**, dielectric transformers for X-band waveguide, 666
- Oliphant, M. L.**, acceleration of protons, 2858
- Oliver, D. J.**, with others, photoelectromagnetic effect in InSb, 145
- Olver, F. W. J.**, asymptotic solution of linear differential equations, 3131

- Omholt, A.**, auroral E-layer ionization and luminosity, 119; recombination in E layer during aurorae, 1413; aurorae caused by angularly dispersed protons, 3383; secondary processes due to absorption of emission from aurorae, 3384
- and L. Harang, lifetime of 1S state of oxygen atom in atmosphere, 1053
- O'Neill, G. D.**, space-charge-limited current between nonsymmetrical electrodes, 303
- O'Neill, G. K.**, storage-ring synchrotron, 3846
- Ono, K.**, with others, magnetic resonance in α - Fe_2O_3 , 486
- Onoue, M.**, and others, transmission of microwaves over sea, 3861
- with others, discriminating disturbances in solar noise observation, 741
- Oomura, T.**, with S. Chikazumi, magnetic anisotropy induced by annealing, 1459
- van Oosterhout, G. W.**, measuring ferromagnetic properties of small samples, 3143
- Orchard, H. J.**, rejector circuit, (D)2664
- Orhaug, T.**, with others, ionospheric observations during solar eclipse, 3379
- Orlov, Y.**, betatron oscillations in strong-focusing synchrotron, 2859
- O'Rourke, R. C.**, with A. W. Saenz, magnetic properties of electron gas, 1021
- Orthman, H. J.**, with J. G. Helmcke, theory and technique of electron-microscope stereograms, 1183
- Osborne, B. W.**, chrominance circuits for colour-television receivers, 3231
- Oshchepkov, P. K.**, L. D. Rozenberg and Yu. B. Semennikov, electron-acoustic image converter, 2184
- Osherovich, A. L.**, with others, atmospheric ozone during solar eclipses, 2374
- Osipov, B. D.**, with others, electromechanical stabilizer for klystron frequency, 58
- Osmond, W. P.**, temperature-dependent resistivity of MgMn ferrites, 3456
- Osterberg, C.**, with others, atmospheric ozone as function of height, 3044
- Ostrobodova, V. V.**, and S. G. Kalashnikov, effect of heat treatment on Ge, 2104; recombination at thermal acceptors in Ge, 2105
- Oswald, J.**, with M. D. Indjoudjian, sampling of valves for inspection, 2253
- Ota, M.**, and others, geomagnetic variations during solar eclipse, 2045
- Otter, F. A., Jr.**, P. J. Flanders and E. Klokholm, ferromagnetism in noble-metal alloys containing Mn, 175
- Otter, M.**, with others, single crystals with pure surfaces, 1140
- Ouweltjes, J. L.**, and W. L. Wanmaker, nonstoichiometry in oxygen-dominated phosphors, 3397
- Ovcharov, V. T.**, axially symmetrical electron beams, 2907
- Overhoff, G.**, printing results from computers, 1629
- Owen, G. E.**, with others, electron emission from superconductors, 3340
- Owen, J.**, with K. D. Bowers, paramagnetic resonance, 2139
- Owens, A. R.**, with G. B. B. Chaplin, junction-transistor scaling circuit, 3006
- with others, transistor digital fast multiplier, 1631
- Oyer, H. J.**, intelligibility of speech at ear and mouth, 1289
- Ozdogan, B.**, determination of ultrasonic wave pressure, 1940
- Ozhigov, I.**, with E. Kondorski, resistance of Fe-Ni alloys in magnetic field, 1777
- Paardekooper, H.**, push-button attenuator, 1003
- Pace, T. W.**, Marconi television centre, 1884
- Pachner, J.**, directivity pattern at distance from emitter, 1933
- Padel, S. H.**, with A. R. A. Rendall, Broadcasting House/Crystal Palace television link, 3891
- Paetzold, H. K.**, investigations on atmospheric ozone layer, 748
- and H. Zschörner, observation of 'ozone hole', 417
- Page, C. H.**, frequency conversion with positive nonlinear resistors, 2978
- Page, E. S.**, with B. H. Briggs, empirical study of random functions in interpretation of ionospheric movements, 755
- Page, R. M.**, R. W. Terhune and J. Hickmott, Jr, signal/noise ratios of photoconductive detectors, 2565
- Page, R. S.**, console-type electron microscope, 540
- Paine, T. O., L.**, I. Mendelsohn and F. E. Luborsky, effect of shape anisotropy on coercive force, 1460
- with others, permanent-magnet properties of elongated iron particles, 826
- Painvin, J.**, with others, magnetic-core circuits for digital systems, 1313
- Palazzi, G. D.**, magnetic differential probe for synchrotron, 2849
- Palluel, P.**, developments of O-type carcinotrons, 3576
- and A. K. Goldberger, O-type carcinotron, 1904
- Palmer, D. R.**, with T. Gold, solar outburst, 23rd February 1956, 2715
- Palmer, H. P.**, with others, polarization measurements on radio sources, 3714
- Palmour, H., III**, high-temperature metal/ceramic seals, 193
- Pan, W. Y.**, frequency characteristics of local oscillators, 593
- Pancholy, M.**, with others, ultrasonic output of quartz radiator, 311
- Panke, H.**, with H. Dziergwa, yellow luminescence due to titanium in magnesium silicate containing fluoride, 1066
- Pankove, J. I.**, revealing junctions in Ge crystals, 473; transistor fabrication by melt-quench process, 1453
- Pannett, W. E.**, with E. Molloy, Radio and Television Engineers' Reference Book, (B)1268
- Pappis, J.**, with others, magnetostriction and permeability of magnetite and Co-substituted magnetite, 494
- Paramonova, R.**, and A. Rzhavov, lifetime of excess current carriers, 2098
- Parfitt, G. D.**, with D. D. Eley, semiconductivity of organic substances, 1457
- Park, J. H.**, and H. N. Cones, breakdown of air in nonuniform field, 3024
- Parker, G. M.**, and R. W. Williams, magstrip isograph, 334
- Parker, J. D.**, f.m. for British Forces network, 1213
- Parker, J. G.**, reflection from irregular surface, 3602
- Parker, W. N.**, and M. V. Hoover, gas tubes protect transmitters, 1235
- Parkhomenko, E. I.**, piezoelectric structure of quartz, 3083
- Parkinson, R. W.**, night-time lower ionosphere deduced from coupling phenomena, 1050; fading periods of E region coupling echo, 2520
- with N. Davids, wave solutions for critical coupling in ionosphere, 1192
- Parmenter, R. H.**, energy levels of crystal modified by alloying or pressure, 839; symmetry properties of energy bands of zinc-blende structure, 1138
- Parodi, M.**, stability criterion for analogue machines, 671
- Parr, J. C.**, with A. L. Cullen, perturbation method for measuring microwave fields, 519
- Parravano, G.**, with others, induced ferromagnetism by addition of Li ions to NiO, 2454
- Parry, J. V. L.**, with L. Essen, atomic and astronomical time, 2471
- Parsons, S. J.**, with J. S. Hey, radar measurement of low elevation angles, 2746
- Parsons, S. L.**, with others, beam-indexing 'apple' tube, 3893
- Parthasarathy, R.**, with G. Swarup, solar brightness distribution at 60 cm, 1707
- Parthasarathy, S.**, and V. Narasimhan, performance of quartz oscillator in liquids, 1602
- M. Pancholy and C. B. Tipnis, ultrasonic output of quartz radiator, 311
- Partin, M. E.**, with others, beam-indexing colour-television display system, 3893
- Parton, J. E.**, and G. D. Stairmand, magnetic flux probe, 1817
- Parygin, V. N.**, synchronization of oscillators with weak coupling, 3678
- Parzen, P.**, with M. Scott, excitation of space-charge waves, 2912
- Paschke, F.**, theory of coupled space-charge waves, 619
- Päsler, H.**, use of computer 'GAMMA 3', 1629
- Pasyukov, V. V.**, semiconducting ignitors for ignitron rectifiers, 272; effect of radioactive radiation on photocell, 2567
- Patalong, H.**, with A. Herlet, blocking properties of junction rectifiers, 2901
- Patchett, G. N.**, constant-voltage amplifier and oscillator, 913
- Patel, J. R.**, delay time of plastic flow in Ge, 2443
- Pateyuk, G. M.**, high-frequency discharge, 3026
- Patrushev, V. L.**, natural frequency of cavity with dielectric, 2657; design of toroidal cavity resonator, 3669
- Patton, W. T.**, with others, ring array as skip-range aerial, 326
- Paul, R. J. A.**, short analogue computer, 2299
- Paul, W.**, with others, effect of pressure on *n*-type Ge, 1452
- Paulevé, J.**, ferromagnetic resonance of Gd ferrites, 183
- and B. Dreyfus, resonance of ferrites in circularly polarized field, 2455
- Pauling, L.**, and P. Pauling, valence and atomic size of Si etc. in alloys, 2798
- Pauling, P.**, with L. Pauling, valence and atomic size of Si etc. in alloys, 2798
- Paulsen, W. H.**, with others, detectability of clouds by 1.25-cm radar, 2749
- Paulus, M.**, with C. Guillaud, permeability and grain size of Mn-Zn ferrites, 3122
- with others, reduction of eddy-current losses in ferrites, 3457
- Pauphét, R.**, properties of Gd ferrites, 2821
- with others, properties of yttrium ferrite, 3114
- Pavalov, M.**, with G. M. Davidson, potentiometer tachometer, 3841
- Pavel, E. A.**, transmission properties of low-frequency programme lines, 14
- with others, influence of delay distortion on quality of broadcasts, 266
- Pawsey, J. L.**, radio star scintillations due to ionospheric focusing, 755
- Paxton, W. S.**, and T. G. Nilan, domain configurations in grain-oriented Si steel, 169
- Peacock, N. J.**, with others, mechanism of breakdown in hydrogen, 387
- Peake, H. J.**, and N. Davy, field of cylindrical trough with plane conductor, 1018
- Pearce, A. F.**, with D. J. Wootton, klystron oscillator for 8-9 mm λ , 2579
- Pearce, C. A. R.**, permittivity of two-phase mixtures, 787
- Pearcey, T.**, with G. W. Hill, starting routines for C.S.I.R.O. computer, 669
- Pearlman, A. R.**, super-alpha composite transistors, 927
- Pearson, G. L.**, and W. H. Brattain, history of semiconductor research, 797
- H. C. Montgomery and W. L. Feldmann, noise in Si *p-n*-junction photocells, 1900
- Pearson, W. B.**, with E. Mooser, new semiconducting compounds, 2091; chemical bond in semiconductors, 2781, 3422
- Pease, R. S.**, with G. H. Kinchin, displacement of atoms by radiation, 2034
- Peek, S. C.**, light source excited by radio frequency, 1837
- Pekar, S. I.**, theory of semiconductors and dielectrics, 3420
- with I. M. Lifshits, equations of electrons at surface of crystal, 372
- Pell, L.**, with others, fast sweep circuit, 698
- Pellegrini, U.**, pulse scaler circuit, 3309
- Pender, J. T.**, electrical contacts, 3813

- Penfold, A. S.**, with B. M. Spicer, energy stability of 22-MeV betatron, 1176
- Penin, N. A.**, with S. G. Kalashnikov, influence of frequency on rectifying properties of semiconductor diodes, 1889
- Penning, P.**, annealing of Ge supersaturated with Ni, 3779
- Penton, W. A.**, sine-wave generator for very low frequencies, 223
— with others, frequency variations in New Zealand of transmissions from GBR, 1482
- Pepinsky, R.**, with H. R. Danner, specific-heat anomaly of $Cd_2Nb_2O_7$, 449
— F. Jona and G. Shirane, ferroelectricity in alums, 3404
— with others, aspects of ferroelectricity, 785; neutron analysis of tetragonal $BaTiO_3$, 1072; diffraction study of $PbTiO_3$, 2771
- Pepping, F.**, with A. Schopp, portable R/T sets for railways, 1550
- Perakis, N.**, and others, induced ferromagnetism by addition of Li ions to NiO, 2454
- Pérard, A.**, standards of length and time, 2834
- Percival, W. S.**, graphs of active networks, 52
- Percy, J. N. B.**, with others, reproducing equipment for fine-groove records, 2279
- Perel', V. I.**, with Yu. M. Kagan, theory of Langmuir probes, 1024; mobility and space charge of ions in nonuniform field, 3335
- Peri, G.**, with others, thermoelectric effect of CuO , 3111
- Perkins, W. R.**, with D. McDonnell, stability of closed-loop pulsed radar circuits, 269
- Perlmutter, A.**, with others, infrared stimulation of photoconductivity in luminescent powders, 131
- Perrier, A. L.**, magnetogalvanic effects, 383
- Perrot, M.**, and others, thermoelectric effect of CuO , 3111
- Perry, F. R.**, with others, 20-MeV betatron for X-ray therapy, 876
- Persen, L. N.**, with J. Kestin, error function of complex argument, 2467
- Pershits, Ya. N.**, interface layers near electrodes in dielectrics, 448, 2125
- Perzley, W.**, precision digital delay generator, 864
- Peters, H.**, standardization of h.f. coaxial cables, 15
- Peters, J.**, phase pre-correction in television, 584; approximation for low-pass filter using flow analogy, 1001
- Peters, R. W.**, with G. C. Tolhurst, effect of attenuating one channel of dichotic circuit, 3606
- Peters, W.**, new type of aerial insulator, 1618
- Peterson, A. M.**, and others, aspect-sensitive radio reflections from ionosphere, 1527
— with others, meteor ionization trails, in extended-range v.h.f. propagation, 236, oblique reflections from, 3509
- Peterson, G. E.**, E. Sivertsen and D. L. Subrahmanyam, intelligibility of diphasic speech, 2942
- Petford, A. D.**, with B. V. Rollin, electrical properties of InSb at low temperatures, 145
- Petrie, D. P. R.**, with D. R. Chick, e.s. particle accelerator, 1838
- Peysou, J.**, and J. Ladefoux, temperature-coefficient of ceramic-dielectric capacitors, 3136
- Pfann, W. G.**, temperature-gradient zone melting, 1142
— and D. W. Hagelbarger, e.m. suspension of molten zone, 1775
- Pfeffer, L.**, with R. H. Delano, effect of a.g.c. on radar tracking noise, 2747
- Pfeifer, H.**, influence of field inhomogeneity in nuclear resonance, 404
- Pfister, W.**, studies of refractive index in ionosphere, 755
- Phadke, K. R.**, atmospheric noise interference in 5-Mc/s band at Poona, 905
— with S. V. C. Aiyar, atmospheric interference at Poona, 1202
- Phillipp, E. O.**, frequency dividers with large ratio, 3003
- Phillips, G.**, with A. M. J. Mitchell, measurement by nuclear resonance of light-water concentration, 2502
- Phillips, G. J.**, diffuse ionospheric reflection of medium waves at night, 755
— and M. Spencer, effects of amplitude patterns in measurement of ionospheric drifts, 120
- Phillips, J.**, with others, infrared absorption of InSb, 2119
- Phillips, J. A.**, nine's-complement decade counter, 3312
- Phillips, K.**, with others, 20-MeV betatron for X-ray therapy, 876
- Phillips, M. L.**, ratio of steady signal to random noise, 2513
- Phyllip-Jones, G.**, with R. S. Arbon, ferromagnetic computing circuits, 2647
- Picht, J.**, calculation of field distribution with specified properties, 1361
- Pickin, J. R.**, with H. S. Cockroft, klystrons for high-power c.w. operation, 1588
- Piddington, J. H.**, hydromagnetic waves in ionized gas, 91; four possible waves in magneto-ionic medium, 733; growing e.m. waves, 2030; growing space-charge waves, 2702, and electron-wave valve, 2258
— and G. H. Trent, cosmic radio sources observed at 600 Mc/s, 2707
- Piech, T.**, with M. Jeżewski, dielectric properties of $BaTiO_3$, 1740
- Plechatek, H.**, with H. Hanemann, carrier-frequency installations, 2218
- Plefke, G.**, reflection at change in helix pitch, 322, 662
- Plelich, P.**, 3-dimensional radar simulator, 3071
- Pierce, E. T.**, design of lightning-flash counters, 2069
- Pierce, J. R.**, propagation in arrays of parallel wires, 942; physical sources of noise, 2308
— and L. R. Walker, growing waves due to transverse velocities, 1906
- Pierre, E.**, with others, photodiode with alternating magnetic field, 1895
- Pigg, J. C.**, with others, neutron bombardment of β -type Ge, 468
- Piggott, J.**, ionospheric absorption at different stations, 1051; measurement of f_oE at night, 1408
— with E. V. Appleton, storm phenomena and solar-cycle variations of F₂ layer, 755
- Pigott, M. T.**, Fe-Al alloys for magnetostrictive transducers, 3118
- Pikus, G. E.**, and Yu. A. Firsov, conference on theory of semiconductors, 3767
- Piloty, H.**, and others, computer at Munich (PERM), 1311
- Piloty, R.**, with others, computer at Munich (PERM), 1311
- Pliz, F.**, circuit technique for electrical test patterns, 2231
- Pineo, V. C.**, heights of ionospheric scattering of v.h.f. waves, 3521
- Pines, D.**, and C. P. Slichter, relaxation times in magnetic resonance, 1388
— with J. Bardeen, electron-phonon interaction in metals, 379
- Pinsker, Z. G.**, S. A. Semiletov and E. N. Belova, structure of $Tl_2Sb_2Se_4$, 2448
- Piper, W. W.**, with others, effect of electron traps on electroluminescence, 3755
- Pippin, J. E.**, frequency doubling and mixing in ferrites, 3301
- Pires de Carvalho, A. A.**, photomagnetolectric effect in Ge, 2113
- Pisarevski, A. N.**, with A. R. Shul'man, temperature variations of work function of Ge, 2795
- Pistol'kors, A. A.**, Mathieu functions in computations of aerial fields, 2630
— with A. L. Mikaelyan, e.m. waves in magnetized ferrite, 20
- Pizer, H. I.**, J. G. Yates and K. F. Sander, electron-trajectory tracer, 3833
- Pizzarello, F. A.**, with L. H. DeVanx, elastic constants of InSb, 2802
- Plank, V. G.**, D. Atlas and W. H. Paulsen, detectability of clouds by 1.25-cm radar, 2749
- Plebański, J.**, with R. Kulikowski, optimum characteristics of linear pulse systems, 1327
- Plessner, K. W.**, and R. West, $BaTiO_3$ with Si and Ge, 1737
- Ploke, M.**, with M. Keller, X-ray images made visible by television tube, 1901
- Plumlee, R. H.**, oxide cathode, electrolytic transport phenomena in, 3583, donor centres in, 3586
- Plummer, A. R. F.**, excess current in Ge p - n junctions, 3433
- Plummer, C. B.**, television satellite systems, 2553
- Plyler, E. K.**, L. R. Blaine and W. S. Connor, velocity of light from molecular constants of CO, 69
- Plyutto, A. A.**, with others, resistance of metals at high current densities, 456
- Podolsky, B.**, and H. Denman, generalized macroscopic electrodynamic equations, 2028
- Poeverlein, H.**, theory of diffraction of radio waves, 2875; extended transmission ranges at m, dm and cm λ , 3860
- Pohl, W. J.**, mutual heating in transmitting-valve filament structures, 2583
- Poincelot, P.**, diffraction problem, 89, 2700; distribution of current along aerial, 980; reflection, of e.m. wave from ionized gas, 1189, of radio signals by ionosphere, 3510
- Pokras, A. M.**, with L. B. Tartakovski, periscope aerial system, 3646
- van der Pol, B.**, Atlas of Ground-Wave Propagation Curves for Frequencies between 30 Mc/s and 300 Mc/s, (B)3201
- Poleck, H.**, compensating recording capacitance bridge, 2171
- Polkovski, I. M.**, apparatus for protection of hearing, 965
- Pomerantz, M. A.**, R. A. Shatas and J. F. Marshall, conductivity induced in MgO crystals by electron bombardment, 158
— with others, dependence of secondary-electron emission on angle of incidence of primaries, 3343
- Poole, K. M.**, omission from hollow cathodes, 628
- Pope, J. H.**, with others, the 'nose' whistle, 2393
- Popert, F.**, with M. Sánchez, spectra of modulated pulse trains, 1203
- Popkin-Curman, J. R.**, colour-signal generator, 3834
- Pople, J. A.**, with A. D. Buckingham, dielectric constant of imperfect nonpolar gas, 378
- Popov, N. A.**, and N. A. Kaptsov, discharge in frequency region between h.f. and a.f., 3025
- Popov, P.**, with others, radio literature in U.S.S.R., 2269
- Porai-Koshits, E. A.**, N. Ya. Karasik and G. O. Gomon, X-ray investigation of solid solutions of $BaTiO_3$ - $PbZrO_3$, 1436
- Poritsky, H.**, transient fields from dipoles near ground, 1851
- Porter, C. S.**, with others, measurement of complex permeability and permittivity, 2845
- Portmann, P. A.**, with others, tropospheric propagation beyond horizon, 238
- Portnoy, W. M.**, with others, self-diffusion in Ge, 3429
- Pöschl, K.**, Mathematische Methoden in der Hochfrequenztechnik, (B)2833
— with W. Kleen, focusing electron beams by magnetic fields, 618
— with H. J. Linn, complex correlation coefficient, 2832
- Possener, M.**, and I. J. van Heerden, variation of cosmic-ray intensity near 1954 sunspot minimum, 2712
- Post, E. J.**, electromagnetic theory of moving matter, 1032
— and J. W. A. van der Scheer, bridge-stabilized oscillators, 2997
- Poté, A. J.**, with D. Davidson, over-horizon communications links, 910
— with others, u.h.f. long-range communication systems, 263; folded unipole aeriels, 1616
- Potler, G. X.**, synchronization of Greek radio-link system, 1207
- Potok, M. H. N.**, waveguide filters, 1991
- Potts, R. B.**, with E. W. Montroll, effects of defects on lattice vibrations, 1042
- Poulet, H.**, with others, optical spectrum of piezoelectric crystals, 1063
- Povarov, G. N.**, Russian bibliography on relay-contact circuits, 680
- Powell, R. C.**, with others, re-entrant cavity for measurement of complex permeability, 2848
- Powell, R. W.**, with others, conductivities of carbon, 2422
- Powell, W. B.**, improving characteristics of cyclotron beam, 3163
- Power, F. S.**, with D. A. McLean, Ta solid dielectric capacitors, 2982
- Power, G.**, fields and stresses in dielectric material, 3019; extension of circle and sphere theorems, 3688

- Powers, D. A.**, and T. Suita, pre-breakdown current and noise in insulators, 845
- Powles, J. G.**, radio-frequency physics, 3031
- Pozin, N. V.**, with others, Russian bibliography on telemetering, 869
- Prache, P. M.**, with B. Chiron, complex susceptibility of Mg ferrites, 2137
- Prasad, S. C.**, and W. A. Wooster, elastic constants, of Si, 152, of Ge, 475
- Pratt, G. W.**, with others, beam-indexing 'apple' tube, 3893
- Pratt, R. G.**, with J. C. E. Jennings, numerical ray tracing in electron lenses, 76
- Praxmarer, W.**, performance chart of magnetrons, 2910
- Prener, J. S.**, and F. E. Williams, associated donor-acceptor luminescent centres, 2405
- Pressey, B. G.**, and G. E. Ashwell, deviation of l.f. ground waves at coast-line, 3195
- G. E. Ashwell and C. S. Fowler, phase of l.f. ground wave propagated across coast-line, 3194
- Pressman, J.**, temperature changes in ozonosphere, 110
- with others, formation of lower ionosphere, 1407
- Preston, F. S.**, computer for solution of tangents, 2969
- Preston, G. W.**, cathode roughness and beam current density, 3580
- Preston, J.**, with others, miniature loudspeakers, 2277
- Preston, J. S.**, and G. W. Gordon-Smith, discontinuities in saturation curves of photocells, 609
- with others, study of gold films, 836
- Prérot, F.**, with G. Mongodin, experimental study of molecular pump, 2752
- with others, diffusion pump using neon 12, 3393
- Price, B. T.**, ionization by relativistic particles, 2018
- Price, P. J.**, semi-conductors, ambipolar thermomigration of electrons and holes in, 1079, transport effects in, 3766
- Price, R.**, with G. J. Stanley, radio emission of deuterium from galaxy, 3039
- Price, R. E.**, travelling disturbances in ionosphere, 755
- Pridmore-Brown, D. C.**, with U. Ingard, radiation from acoustic boundary layer, 1935; scattering of sound by sound, 2939
- Prigent, H.**, with F. Cahen, telecontrol system on 175 c/s in France, 1187
- Prihar, Z.**, topological properties of telecommunication networks, 3212
- Prilezhaeva, I. N.**, with others, electron mirrors and observation of domains in ferromagnetic materials, 1794
- Primozich, F. G.**, E. R. Schatz and J. B. Woodford, tapered strip line for pulse transformer, 993
- Prince, E.**, neutron-diffraction observation of heat treatment in Co ferrite, 3452
- Prince, M. B.**, diffused *p-n* junction Si rectifiers, 3225
- Pringle, D. H.**, and E. M. Bradley, microwave control valves employing negative glow discharge, 1599
- Pritchard, A. G.**, with others, detection of $S_{\frac{1}{2}}$ current system in ionosphere, 1049
- Pritchard, R. L.**, analysis of common-base transistor circuit, (D)1012; h.f. power gain of junction transistors, 3566
- Proebster, W. E.**, parallel adding mechanism of PERM, 1629
- with others, computer at Munich (PERM), 1311
- Prokhorov, A. M.**, with N. G. Basov, methods of obtaining active molecules for molecular generator, 402; molecular-beam oscillator and amplifier, 3709
- Prokocimer, B.**, with A. Chevallier, isolating direct-current amplifiers, 3316
- with others, recording r.f. interference, 3488
- Prokopalo, O. I.**, with others, fusion of BaTiO₃ by conduction, 2770
- Prokott, E.**, transmission tests beyond optical range, 248
- Proskurnin, M. A.**, with others, polarization of Rochelle salt exposed to radioactive irradiation, 143
- Prothe, W. C.**, with others, detection of signals by human and electronic detector, 3609
- Proud, J. M.**, P. Tamarkin and E. T. Kornhauser, propagation of sound pulses in dispersive medium, 1931
- Prowse, W. A.**, and P. E. Lane, breakdown of gases in crossed fields, 2024
- Prugh, T. A.**, with C. W. Durieux, microphonism due to transistor leads, 3246
- Ptushinski, Yu. G.**, with N. D. Morgulis, diffusion of impurity atoms in oxide cathode, 1914
- Puff, H.**, with R. Juza, ferromagnetism of Mn₂N, 3799
- Pugh, E. M.**, with F. E. Allison, temperature dependence of Hall coefficients in Cu-Ni alloys, 3801
- Pugh, R. E.**, with others, dependence of meteoric forward-scattering on aerial patterns, 1198
- Pujolle, J.**, acoustic insulation of heavy structures, 3616; broadcasting studios at Marseilles, 3625
- Pumper, E. Ya.**, with V. L. Bouch-Bruevich, *V/I* characteristic of *p-n* junction, 2427
- Pupke, H.**, and H. G. Thom, rotation of plasmons in magnetic field, 2021
- Puri, S. P.**, and P. S. Gill, analysis of spuriousness of G-M tubes, 2511
- Puro, W. O.**, with others, artificial dielectrics with voids, 1437
- Pusch, G.**, with H. Groll, cavity-resonator frequency meter, 219
- Putley, E. H.**, apparatus for recording temperature variation of Hall coefficient, 3155
- with others, preparation, electrical and optical properties of Mg₂Sn, 145
- Pütter, P. S.**, measurement of ionospheric wind from drift velocity of surface condition, 755
- Puzhai, A. N.**, Ge diodes, 3239
- Pyatt, E. C.**, vectorial display of alternating voltages, 1826
- Pyka, M.**, with others, deriving geomagnetic dipole-field coordinates from cosmic-ray observations, 2371
- Pyle, M. O.**, with others, colour-television-receiver design, 1881
- Quarrington, J. E.**, with V. Roberts, measurements of absorption in InSb and GaSb, 145
- Quate, C. F.**, with others, coupled helices, 1612
- Queck, U.**, with E. Scheffler, determination of attenuation of coaxial cables, 2481
- Rabenhorst, H.**, determination of dielectric properties from Brewster angle, 208
- Rabinowitz, J.**, with others, encoding colour for telecasting, 588
- Radcliffe, J. M.**, lattice scattering in homopolar semiconductors, 148
- Rademacher, K.**, and K. Wojacek, cathode fall in glow discharge, 2358
- Radford, W. H.**, with others, u.h.f. long-range communication systems, 263
- Raether, H.**, with J. Lohff, electron emission from metal surfaces, 1027
- Raev, A.**, I. Uzunov and A. Angelov, self-sustained electronic spokes in magnetrons, 1587
- Ragan, G. L.**, with others, 300-MeV electron synchrotron, 874
- Rajaraman, V.**, with N. S. Nagaraja, effect of component tolerances in selective amplifiers, 3682
- Rajchman, J. A.**, and A. W. Lo, transfluxor, 1637
- Rakshit, H.**, and S. D. Chatterjee, measurement of ionospheric heights, 754
- and M. C. Mallik, frequency of RC-coupled oscillator, 1998
- and S. C. Mukherjee, frequency of coincidence of two sets of pulses, 902
- Rambke, K.**, with A. Deubner, conductivity of thin Ag films, 3763
- Rambo, W. R.**, with J. L. Confalone, radar a.f.c. system uses mechanical tuning, 2075
- Ramm, C. A.**, R. F. Coe and T. B. Vaughan, injection phenomena in proton synchrotron, 2860
- Ramsey, N. F.**, resonance transitions induced by perturbations at two frequencies, 1386
- Rank, D. H.**, H. E. Bennett and J. M. Bennett, velocity of light, 1352
- Ransom, P.**, and F. W. G. Rose, trap activation energies in *n*-type Ge, 3432
- Rao, B. R.**, with M. S. Rao, long-period fading in m.f. signals, 249
- Rao, B. V.**, with S. K. Chatterjee, artificial dielectrics at microwave frequencies, 1385
- Rao, M. S.**, and B. R. Rao, long-period fading in m.f. signals, 249
- Rao, R. V. G. S.**, with N. S. Nanpoothiry, X-ray studies of mica, 3816
- Rao, S. K. L.**, vibrations of triangular membranes, 2598
- Rao, S. R.**, with M. V. J. Row, wobbling of audio note due to rotating target, 3268
- Rappoport, Z. Ts.**, orientation of aerial of ionospheric station, 3511
- Rappoport, P.**, J. J. Loferski and E. G. Linder, electron-voltaic effect in *p-n* junctions, 2437
- with others, photovoltaic effect in GaAs *p-n* junctions, 2566
- Rase, D. E.**, and R. Roy, phase equilibria in BaTiO₃-SiO₂, 1435
- Rashba, E. I.**, *V/I* characteristic of *n-p* junction, 2775
- and K. B. Tolpygo, *V/I* characteristic of *n-p* barrier layer, 2122
- Rasmussen, A. L.**, A. W. Enfield and A. Hess, design of r.f. permeameter, 3482
- Rastogi, R. G.**, development of E₂ layer at Ahmedabad, 3373
- Ratcliffe, J. A.**, ionosphere, irregularities and horizontal movements in, 755, scattering from irregularities in, 755, movements in, 1709, formation of F₁ and F₂ layers in, 2725
- and others, production and loss of electrons in ionosphere, 2724
- Rathenau, G. W.**, and J. F. Fast, initial permeabilities of sintered ferrites, 2136
- Rau, K. L.**, with H. Katz, generation of harmonics, 61
- Rau, R. R.**, and M. E. Caspari, Faraday effect in Ge, 1098
- Raub, E.**, with A. Kussmann, ferromagnetic and antiferromagnetic properties of Au-Mn, 2450
- Rauch, S. E.**, with L. J. Johnson, magnetic-amplifier systems for servos, 3014
- von Rautenfeld, F.**, with E. Belger, required interference-protection ratios for medium-wave transmitters, 1863; shared-channel operation with frequency offset, 1869
- Ravenscroft, I. A.**, and R. W. White, frequency modulator for radio relay systems, 286
- Rawcliffe, J.**, oscillating-electrode voltmeters, 2489
- Rawer, K.**, information on F₂ layer from ionization maps, 755; accuracy of 'Sonne' (consol) system, 760; ionospheric absorption, 1417; irregularity and regularity of sporadic-E layer, 2379; focusing by 'rippled' ionosphere, 2872
- with others, observations of ionospheric movements, 755
- Rawls, L. E.**, with others, experimental on-channel satellite booster system, 2553
- Ray, S.**, with A. K. Saha, features of E₂ layer at Calcutta, 112
- with others, ionosphere during solar eclipse, 2732
- Rayner, G. H.**, and L. H. Ford, effect of humidity on stability of inductance standards, 2472
- Rayton, W. M.**, with others, ionospheric effects at v.h.f. and u.h.f., 3519
- Reber, G.**, world-wide spread F, 3374
- and G. R. Ellis, cosmic r.f. radiation near 1 Mc/s, 2369
- Redden, M. S., Jr.**, and H. W. Zancanata, telemetering receiver conserves bandwidth, 2526
- Redfield, D.**, recombination in Te, 1430
- Rediker, R. H.**, with J. E. Thomas, Jr, surface recombination velocity in Ge, 2441

- Reed, R. D. C., with L. E. Lawley, absorption of ultrasonics in liquids, 1603
- Reeves, R. J. D., voltage-coincidence oscilloscope, 1164; klystron control system, 3068
- Regel', A. R., and M. S. Sominski, effect of impurities on conduction mechanism of AlSb, 1106
- with N. P. Mokrovski, temperature dependence of conductivity of liquid Te-Se, 3419
- Reggia, F., with others, microwave measurements on ferrite spheres, 2846
- Rehffuss, D. E., with others, disintegration of Ge⁶⁶, 3784
- Reich, K. H., ferromagnetic resonance, permeability of iron near, 2134, absorption in Ni crystal due to, 2818
- with K. J. Standley, ferromagnetic resonance in Ni and its alloys, 829
- Reichardt, W. C., wide-range frequency meter, 1497
- Reichardt, W., acoustics of the Berlin State Opera House, 3623
- E. Kohlsdorf and H. Mutschler, optimum reverberation time for studios, 10
- Reid, J. H., with M. A. Ellison, long-wave anomaly on 23rd February 1956, 2716
- Reikhrudel', E. M., G. V. Smirnitkaya and A. I. Borisenko, ionic pumps with cold electrodes, 3748
- Reina, F. Moyano. See Moyano Reina, F.
- Reinov, N. M., with others, photomagnetolectric effect in Cu₂O at low temperatures, 822
- Reise, H. A., hard-tube pulsed for radar, 3307
- Reiss, H., *p-n*-junction theory, 3087
- and C. S. Fuller, solubility of Li in B-doped Si, 2787
- C. S. Fuller and F. J. Morin, chemical interactions among defects in Ge and Si, 3092
- Reiss, K. H., emission of light from gas discharges, 766
- Reiss, R., with S. Nikitine, spectra of semiconductors, 2099
- Reissner, E., vibrations of shallow spherical shells, 1271
- Reiter, R., annual variations of atmospherics, 2391
- Remeika, J. P., and W. J. Merz, guanidine vanadium sulphate hexahydrate, 2772
- with others, guanidine aluminium sulphate hexahydrate, 2415
- Remizov, A. N., dependence of magnetic viscosity on dimensions of specimens, 728
- Rendall, A. R. A., and S. H. Padel, Broadcasting House/Crystal Palace television link, 3891
- Renwick, W., design of computer circuits, 3654
- Ressler, H. C., with others, multipath simulator tests communications, 3191
- Reuter, B., with R. Stein, photo-effect in PbS, 3249
- Rexer, E. F., with others, oxide-impregnated Ni-matrix cathode, 626
- Reynolds, G. A., with others, experimental on-channel satellite booster system, 2553
- Reynolds, S. L., noise between metals and dielectrics, 3817
- Reyzlin, A. S., with A. M. Strashkevich, electron-optical action of grid systems, 634
- Rheinfurth, M., errors of cylindrical electron-optical lenses, 1181
- Rhinehart, W. A., and D. J. Zaffarano, pulse-height measurement, 2844
- Rice, M. L., with M. Rigby, bibliography on ionospheric propagation, 1195
- Rice, P. L., and F. T. Daniel, transmission loss vs distance and aerial height, 1531
- with others, propagation through turbulent atmosphere, over irregular terrain, 242, fading in, 250
- Rich, D. J., with P. A. Rizzi, sidebands produced by ferrite modulators, 2005
- Rich, G. J., launching plane surface wave, (D)320
- Richards, D. L., and R. B. Archbold, development of Collard principle of articulation calculation, 3873
- Richards, J. C. S., portable radiation detector, 536; differential amplifier, 3011
- Richards, L. E., with others, resistivity of vitreous ternary lead silicates, 2827
- Richardson, E. G., industrial applications of ultrasonics, 1832
- with J. Busby, propagation of ultrasonics in suspensions, 2274
- Richardson, J. T., and W. O. Milligan, magnetic properties of NiO, 3798
- Richmond, J. H., measurement of time-quadrature components of microwave signals, 2169
- and T. E. Tice, probes for microwave measurements, 2170
- Richter, H., with E. W. Fischer, structural changes in Ge films, 811
- Rickayzen, G., validity of hydrogen-like approximation for impurity levels, 145
- with others, photoelectromagnetic effect in InSb, 145
- Riddell, R. J., Jr, with others, dynamics of ionized media, 2361
- Riddle, C., photoelectric a.g.c., 3160
- Riddle, F. M., temperature-stable transistor oscillator, 2342
- Riddoch, A., with J. H. Leck, cold-cathode ionization gauge, 3073
- Rideout, V. C., Active Networks, (B)65
- and others, timing device and nonlinear units for differential analyser, 2637
- with others, high-speed electronic differential analyser, 24
- Rieder, W., with K. Millian, contact resistance and surface of contact, 2461
- Riesen, D. E., with C. T. Morrow, shock spectrum computer, 1969
- Riéty, P., theory of gold-leaf thermophone, 657
- Rigaux, C., and J. M. Thuillier, negative magnetoresistance effect in semiconductors, 3413
- with others, thermomagnetolectric effects in InSb, 2120
- Rigby, M., and M. L. Rice, bibliography on ionospheric propagation, 1195
- Rigby, S., analogue-to-digital converter, 1009
- Rikitake, T., with others, effect of solar eclipse on ionosphere, 1716
- Rimbart, F., demagnetization of magnetite by alternating fields, 2130
- Rimondi, O., with others, fast sweep circuit, 698
- Rimski-Korsakov, A. V., nonlinear distortion, of nonperiodic signal in electroacoustic path, 314, audibility of, 3274; design of ribbon microphone, 971
- Rindfleisch, H., 'Wullenwever' direction-finding installation, 3066
- with others, influence of delay distortion on quality of broadcasts, 266
- Ring, R. M., with T. J. Carroll, propagation in normally stratified troposphere, 240
- Ringoen, R. M., v.h.f. trans-horizon communication system, 3185
- and J. W. Smith, v.h.f. trans-horizon communication techniques, 2532
- Ritchie, R. H., with others, electron energy losses in metallic foils, 1364
- Rittner, E. S., simultaneous transport of heavy and light holes in semiconductors, 2425
- Rivet, P., diversity tests on long line-of-sight radio links, 2210
- Rizzi, P. A., and D. J. Rich, sidebands produced by ferrite modulators, 2005
- Roach, F. E., with others, photometric unit for aurora and aurora, 3043
- Roach, W. T., with R. M. Goody, distribution of ozone from emission spectra, 3726
- Robert, J., with others, thermoelectric effect of CuO, 3111
- Roberts, B. W., with J. S. Kasper, magnetic structure of Mn, 2127
- Roberts, J. A., with J. P. Wild, spectrum of radio-star scintillations and irregularities in ionosphere, 2058
- Roberts, L. D., R. B. Murray and J. W. T. Dabbs, crystalline fields and antiferromagnetic transitions, 1370
- Roberts, L. M., and S. J. Fray, theory for solid-backed bolometers, 2857
- Roberts, N. H., with others, anomalous polarization in BaTiO₃, 3400
- Roberts, R. W., and R. I. Van Nieu, i.d./o.d. ratio of toroidal cores, 996
- Roberts, V., and J. E. Quarrington, measurements of absorption in InSb and GaSb, 145
- with others, preparation, electrical and optical properties of Mg₂Sn, 145
- Robey, D. H., radiation impedance, of array of cylinders, 3, of liquid-filled cylinder, 4; variable resonant transducer, 3599
- Robinson, D. W., and R. S. Dadson, re-determination of equal-loudness relations, 3271
- Robinson, F. N. H., travelling-wave valves, 2572
- and H. A. Haus, analysis of noise in electron beams, 1593
- Robinson, P., with P. Brocklesby, long-distance v.h.f. radio link, 3879
- Roch, R., and J. Bouzait, influence of splicing on cable impedance, 1951
- Roche, J. F., with others, tropospheric propagation beyond horizon, 238; ionospheric propagation at frequencies exceeding m.u.f., 245
- Rodak, M. I., thermal motion of electrons in two-beam amplifier, 1250
- Rodbell, D. S., and C. P. Bean, reversal of magnetization in tapes, 1126
- Roddy, S. E., with M. E. Williamson, low-power telecasting, 1568
- Rodionov, S. F., and E. D. Sholokhova, sky brightness during solar eclipse, 1705
- with others, atmospheric ozone during solar eclipses, 2374
- Rodot, H., with others, preparation and effective masses for InSb, 3108
- Rodot, M., magneto-thermoelectric effect in semiconductors, 3772
- and others, preparation and effective masses for InSb, 3108
- Roessler, E., long-range long-wave radio navigation, 761
- Rogers, G. L., analysing ionospheric movement records, 2050
- Rogers, J. L., with W. G. Henry, magnetic susceptibility of diamagnetic alloys, 2824
- Rogers, P. S., with others, high-power demountable klystron for X band, 944
- Rogers, T. F., with others, v.h.f. tropospheric overwater measurements far beyond horizon, 234
- Rohan, P., and J. Weisitzer, compensation of wide-band amplifiers, 1010
- Röhler, R., electron emission after glow discharges, 391
- Roi, N. A., electrostrictive and elastic properties of BaTiO₃, 1075; coercive force of BaTiO₃ and mechanical strains, 2086; properties of BaTiO₃ solid solutions, 3407
- Roig, J., with others, photodiodane with alternating magnetic field, 1895
- Rolfe, J., base thickness of alloy-junction transistors, 2902
- Rollin, B. V., and A. D. Petford, electrical properties of InSb at low temperatures, 145
- Romanowski, M., with J. T. Hendersen, standard of mutual inductance, 1830
- and P. A. Fraser, primary winding of Campbell standard inductor, 1831
- Romer, R. H., and R. H. Dicke, technique for microwave spectroscopy, 92
- with R. H. Dicke, pulse techniques in microwave spectroscopy, 1037
- Ronchi, L., and G. Toraldo di Francia, angular momentum of field in waveguide, 18
- Roof, R. B., with others, ionospheric effects at v.h.f. and u.h.f., 3519
- Rooksby, H. P., structure of oxide cathodes, 625
- Roop, R. W., with others, design and performance of e.s. loudspeaker, 1298
- Roorda, J., amplifier with monotonically rising step response, 1340
- van Roosbroeck, W., photomagnetolectric effect in semiconductors, 2780
- Roquet, R., with M. Bayard, arithmetical characterization of messages, 2531
- Rose, A., performance of photoconductors, 768
- Rose, D. C., with others, effective geomagnetic equator, 3721
- Rose, D. J., resolution of field-emission electron microscope, 2504

- Rose, F. W. G.**, and D. J. Sandiford, hole lifetime in *n*-type semiconductor, 1080
 — with P. Ransom, trap activation energies in *n*-type Ge, 3432
Rose, H. J., with D. Kamke, carrier density in plasma, 3336
Rosenbrock, H. H., obtaining transient response from frequency response, 337
Rosenfeld, J. L., with others, beam formation with Pierce-type guns, 2581
Rosenthal, J. E., storage light amplifier, 932
Roser, F. X., large-area scintillation counters, 887
Ross, A., and L. Simon, gate selects pulses for analysis, 3313
Ross, H. McG., with E. Grundy, design and applications of digital computers, 1630
Ross, I. M., and E. W. Saker, applications of InSb, 145
 — with G. C. Dacey, field-effect transistor, 1240
 — with J. L. Moll, transistor parameters and base-layer resistivity, 1244
Ross, L. W., accuracy of solar flare observations, 1398
Ross, W. J., with H. A. Whale, automatic direction finder for recording rapid fluctuations, 2744
Rostoker, N., with J. J. Brophy, Hall-effect noise, 1101
 — with H. Ekstein, quantum theory of fluctuations, 1350
Rostoker, W., with S. Spachner, loss of texture in Ni-Fe alloy tapes, 483
Roth, K. W., with C. D. Ellyett, radar determination of meteor showers, 739
Roth, R. S., and L. W. Coughanour, phase equilibrium relations in systems titania-niobia and zirconia-niobia, 844
 — with others, dielectric properties in system MgO-CaO-SnO₂-TiO₂, 191; properties of piezoelectric ceramics, 1073
Rothe, H., and W. Dahlike, theory of noisy fourpoles, 2665
Rotkiewicz, W., alignment problems in superheterodyne receivers, 3866
Rottgardt, K. H. J., and W. Berthold, sticking potential of c.r.-tube screens, 637; properties of luminescent screens under electron bombardment, 3592
Roubine, E., with others, Faraday effect in plasma, 732
Rous, R. F., pulse-time-modulation terminals for music transmission, 2534
Rouse, J. L., with others, variable-energy cyclotron, 229
Rout, E. R., with others, suppressed-frame system of telerecording, 918
Rouvina, J., with others, 300-MeV electron synchrotron, 874
Row, M. V. J., and S. R. Rao, wobbling of audio note due to rotating target, 3268
Rowden, R. A., television coverage of Gt Britain, 285
 — with others, Crystal Palace television station, 3895
Rowe, E. G., P. Welch, and W. W. Wright, valves of improved quality for government and industrial purposes, (D)617
Rowe, H. E., with J. M. Manley, properties of nonlinear elements, 2988
Rowe, J. E., design of large-signal travelling-wave amplifiers, 1589, 2911
 — and G. Hok, backward waves, 3577
Rowlands, R. O., equivalent equalizer networks, 354; by-pass filters, 3673
Roy, J. M., correlation between f_0F_2 and sunspot number, 2059
Roy, R., and J. K. D. Verma, polarization of e.m. waves in ionosphere, 1526
 — with D. E. Rase, phase equilibria in BaTiO₃-SiO₂, 1435
 — with J. K. D. Verma, polarization of echoes from ionosphere, 2384
Royce, W. G., and W. D. Mathews, d.c. decade amplifier, 3315
Rozenberg, L. D., with others, electron-acoustic image converter, 2184
Rozenblat, M. A., magnetic amplifiers with low sensitivity threshold, 2673
Ruelle, U., ladder networks, 43
Rühl, H., raising cut-off frequency of transistors, 1345
Rumsey, V. H., with R. Justice, measurement of electric field distributions, 2843
Rumsh, M. A., with others, photo-e.m.f. of PbS photocells, 3251
Rumyantsev, A. P., with A. R. Shul'man, thermionic emission properties of ThO and Th, 3259
Runcorn, S. K., conductivity of earth's mantle, 743
Ruppel, W., amplifiers for very low frequencies, 1341
 — with G. Lantz, resistance variation of Ge in magnetic field, 2796
Ruppersberg, H. K., with H. Lueg, dielectric constants of very small amounts of material, 2160
Ruppert, F. W., and J. M. Smith, airborne weather radar, 1426
Russell, G. H., future of European broadcasting, 909
Rust, N. M., long-distance propagation of 16-ke/s waves, 3193
Rutter, J. W., with W. A. Tiller, effect of growth conditions on solidification of binary alloy, 2146
 — with others, mathematical analysis of solute redistribution, 1758; growth twins in Ge, 3101
Ryftin, Ya. A., resolution by television transmitting tubes with energy storage, 3547
Ryle, M., radio stars, 405
Rynn, N., with G. Wade, coupled helices in travelling-wave valves, 1253
Rytov, S. M., fluctuations in self-oscillating systems, 1996; e.m. properties of medium comprising thin layers, 2613
Ryvkin, S. M., and R. V. Khar'yuzov, mobility of carriers injected by light, 1082
 — with T. V. Mashovets, effect of heat treatment on lifetime of carriers in Ge, 2794
 — with others, photoelectric properties of compounds with zinc-blende structure, 2779
Rzhanov, A., with R. Paramonova, lifetime of excess current carriers, 2098
Sabin, G. A., transducer calibration by impedance measurements, 3600
Sabine, H. J., measuring air-flow resistance of acoustic materials, 2275
Sacasa, R. Gea. See Gea Sacasa, R.
Sacco, L., radio link under conditions of superrefraction, 2200
Sacerdote, C. B., with G. Sacerdote, measurement of directivity factor, 2950
Sacerdote, G., and C. B. Sacerdote, measurement of directivity factor, 2950
Sackett, W. T., Jr., short-term life ratings on resistors, 2316
Sadashige, K., and B. F. Melchionni, control of light in television projectors, 589
Sadowsky, M., with others, beam-indexing 'apple' tube, 3893
Sáenz, A. W., and R. C. O'Rourke, magnetic properties of electron gas, 1021
Sagar, F. H., fluctuations of 14.5-ke/s pulses from source in sea, 1277
Ságel, K., resistance of joints in copper cables, 973
 — with A. Münster, electrical properties of TiN and TiC, 2447
Saha, A. K., and S. Ray, features of E₂ layer at Calcutta, 112
 — and others, ionosphere during solar eclipse, 2732
Saito, S., and K. Kurokawa, measuring dielectric properties in microwave region, 1156
Saker, E. W., with I. M. Ross, applications of InSb, 145
Sallen, R. P., and E. L. Key, designing RC active filters, 2662
Salmon, J., theory of high-frequency discharge, 2357
Saloom, J. A., with others, positive-ion drainage in electron beams, 623; beam formation with Pierce-type guns, 2581
Salow, H., and W. v. Münch, switching transistor, 3244
Salpeter, J. L., concept of hole in semiconductors, 1746
Salzer, H. E., formulae for inverse osculatory interpolation, 2154; aerial pattern synthesis, 3645
Samarski, A. A., with A. N. Tikhonov, magnetization of cylinder by coil, 3697
Samolovich, A. G., and M. I. Klinger, theory of semiconductors with impurity band, 3416
 — and L. L. Korenblit, degeneracy of electron gas in semiconductors, 2426
Samorodov, Yu. D., with V. M. Lopukhin, graphical method for investigating travelling-wave valves, 2256
Sampath, S., with others, timing device and nonlinear units for differential analyser, 2637
Sampson, J., with others, double-parabolic-cylinder aerial, 985
Samuels, J. C., cathode-follower phase-shift oscillator, 1005
Samulon, H. A., video measurements using transient techniques, 2474
Sanamyan, V. A., and G. A. Erznkanyan, r.f. emission from sun during eclipse, 2370
Sánchez, M., and F. Popert, spectra of modulated pulse trains, 1203
Sánchez-Cordoves, J., I. Miró and E. Gavilán, plan for television in Spain, 2230
Sandel, T. T., and others, localization of sound sources, 649
Sander, A., circular waveguides with coaxial-line input and output, 2292
Sander, K. F., with others, electron-trajectory tracer, 3833
Sandiford, D. J., with F. W. G. Rose, hole lifetime in *n*-type semiconductor, 1080
Sandjivji, H., with J. Bourseau, coupling impedance and cable screens, 1950
Sandretto, P. G., coordinated-system concept of air navigation, 3386; development of Tacan, 3386
Sands, A. G., with others, wide-band absorbing materials, 1470
Sands, R. H., paramagnetic resonance absorption in glass, 502
Sanford, E. E., with others, colour-television-receiver design, 1881
Sann, K., with others, vacuum-plating equipment for quartz crystals, 503
van Santen, J. G., with others, solid-state image intensifiers, 1897
Sargent, D. J., with G. H. Metson, electron bombardment of valve envelope, 2588
Sarkar, A. B., with H. J. Leak, e.s. loudspeakers, 3627
Sassier, M., Ge power rectifiers, 2886
Sato, K., and others, travelling-wave valves for 4-kMc/s band, 2576
Sato, M., and Y. Tino, magnetic anisotropy energy of Ni and Ni-Cu alloys, 2453
Sato, T., anomalous variations in F₂ and E regions, 2053
Sauber, J. W., square-law detector for r.m.s. voltages, 528
Saunders, J. H., with M. H. Sirvetz, resonance widths in Ni-Co ferrites, 3119
Sauze, A., with others, thermoelectric effect of CuO, 3111
Savelli, M., with others, stationary random functions, 3467; square-law detection of background noise, 3524
Savinov, V. P., with others, electrical properties of ZnTe, 3439
Sawada, K., with I. Kasuya, f_0F_2 at observatories in Japan, 3052
Sawada, S., with others, thermal transition of transparency in BaTiO₃, 453
Sawamoto, K., with E. Yamaka, photo-induced Hall effect in MgO, 2115
Sawazaki, N., and T. Honma, microwave repeater system using travelling-wave valves, 1212
Sawner, M. L., with others, spectral energy distribution of ZnS-Ag and ZnCdS-Ag, 2762
Sawyer, B., with D. C. Bennett, single crystals produced by zone levelling, 3102
Saxon, D. S., tensor scattering matrix for e.m. field, 1690
Saxon, G., electron beam loading in linear accelerators, 230
Saxton, J. A., with others, v.h.f. propagation by ionospheric scattering, 1860
Sayasov, Yu. S., with A. S. Kompaneets, almost conical e.m. resonators, 1640
Sayied, A. M., with B. D. Nag, theory of Čerenkov effect, 3700
Sbitnikova, I. S., with others, depiction of domains of ferromagnetic material, 1793
Scalfe, B. K. P., molecular theory of electrostriction, 2353
Scarborough, H. E., Tacan ground beacon AN/URN-3, 3386

- Schacher, D., with others, encoding colour for telecasting, 588
- Schade, O. H., image gradation in television, 1570
- Schaffeld, W., and H. Bayer, propagation in circular waveguides near cut-off, 2619
- Schäfer, F. W., with J. Meixner, Mathiesche Funktionen und Sphäroidfunktionen, (B)511
- Schagen, P., 'scenioscope' television camera tube, 1228
- Schatz, E. R., with others, tapered strip line for pulse transformer, 993
- Schechter, D., with W. Kohn, theory of acceptor levels in Ge, 808
- Scheer, G. H., reliability in electronic equipment, 2595
- van der Scheer, J. W. A., with E. J. Post, bridge-stabilized oscillators, 2997
- Scheffler, E., and U. Queck, determination of attenuation of coaxial cables, 2481
- Schelbe, A., and others, quartz clocks at the Physikalisch-Technische Bundesanstalt, 3468
- Schelkunoff, S. A., representation of e.m. fields in cavities, 686
- Schenkel, H., and H. Statz, junction transistors with $\alpha > 1$, 1893
- Schupp, A., and F. Pepping, portable RT sets for railways, 1550
- Schering, H., mean geometrical distances of circle, 2953
- Scherrer, P., with others, dielectric properties of ice, 377
- Schiesser, H., loudspeakers with spherical radiation, 1948
- Schilling, H., transformer design on insertion-loss principles, 338
- Schimmel, F. M., with F. Brün, theory of autodyne detector, 1664
- Schimmel, N., with others, shore-based radio aids, 1055; ramark beacon for use with marine radars, 1056
- Schimpf, L. G., with J. G. Linvill, design of tetrode transistor amplifiers, 3684
- Schirmer, H., conductivity of plasma, 382; thermal conductivity of plasma, 1029
- Schittenhelm, R., 15-MeV betatron for nondestructive testing, 877
- Schlesinger, K., post-acceleration and e.s. deflection, 2591; television sweep generation, 2893; sampling detector for intercarrier TV sound, 3551
- Schlicke, H. M., cascaded feed-through capacitors, 2323
- Schlosser, E. G., and S. Götz, d.c. amplifier with asymmetrically earthed input, 2004
- Schmerling, E. R., and J. O. Thomas, distribution of electrons in undisturbed F_2 layer, 2726
- with others, production and loss of electrons in ionosphere, 2724
- Schmid, K., with others, microwave television radio relay, 2546
- Schmidt, A., with F. Eckart, Se rectifiers with various impurities, 271
- Schmidt, H. J., 21-Mc/s local television network, 3541
- Schmidt, P. W., tables of $\int_0^x J_0(t) dt$, 2152
- Schmidt, W., hyperbolic-field tube for multiplication, 2924
- Schneeberger, R. J., area sources of low-energy electrons, 3173
- Schneider, H., portable scintillation counter, 888; determination of wave fields by means of LC networks, 891; intelligibility of amplitude-limited speech, 3614
- Schöfer, R., with W. Heywang, influence of structure on hysteresis of $BaTiO_3$, 3758
- Schönfeld, H., $1/f$ law of noise in semiconductors, 817
- Schonsted, E. O., and H. K. Irons, airborne magnetometer Type-2A, 104
- Schooley, A. H., radar sea clutter, 3390
- Schopper, E., with others, Van de Graaff generator with liquid charge carrier, 915
- Schopper, H., optical investigation of interdiffusion of metals, 1391
- Schrag, R. L., method for studying large-scale irregularities in E region, 755; M-type ionospheric reflections at 150 kc/s, 755
- Schroeder, A. G., and W. G. Gibson, television vertical aperture compensation, 1885
- Schröter, O., from punched-card computer to EDPM, 1629
- Schubert, D. C., with others, electron-optical image of atomic beam, 2861
- Schultz, B. H., decay of photoconductance in Ge, 810
- Schultz, C. W., with W. S. Bell, shipboard telemetry for missiles, 3180
- Schultz, F. V., with others, ring array as skip-range aerial, 326
- Schultz, G. F., Russian terminology, for vacuum tubes, 1247, for ionosphere, 1715, for aerials, 2294
- Schultz, M. L., and G. A. Morton, photoconduction in Ge and Si, 772
- Schultz, T. J., condenser microphone, 2949; cathode followers for impedance matching, 3010; electronic wattmeter, 3496; acoustic wattmeter, 3605
- Schultz, W., with H. U. Harten, barrier-layer photoelectric effect in Ge, 614
- Schulz, A., with W. Kluge, reduction of cathode fall of glow discharge, 389
- Schumacher, K., creep-path formation in synthetic materials, 142
- Schumann, W. O., influence of earth's magnetic field on wave propagation, 232, 3060; pulse trains associated with lightning flashes, 2394
- Schünemann, R., u.s.w. propagation, 3199
- Schurink, J. J., twin-cone loudspeaker, 12
- Schütt, K., discharge mechanism in Ar-filled counter, 1845
- Schütte, K., Index Mathematischer Tafelwerke und Tabellen aus allen Gebieten der Naturwissenschaften, (B)2470
- Schüttlöffel, E., aerials for dm- λ radio-link network, 3283
- Schützer, W., with D. Bohm, statistical problem in physics and theory of probability, 1349
- Schwabe, E., with W. Andrä, rendering elementary magnetic domains visible, 1121
- Schwabe, G., variation of photo-e.m.f. with direction of illumination in PbS films, 3077
- Schwantes, R. C., H. J. Hannam and A. van der Ziel, flicker noise in secondary-emission tubes and multiplier phototubes, 3587
- Schwartz, E., colour-television systems, 1559
- with F. Below, position of colour subcarrier in 625-line adaptation of N.T.S.C. system, 1878
- Schwartz, M., with K. A. Logan, restoration of resistivity in Ge, 1094
- Schwartz, R. F., bibliography on directional couplers, 2165
- Schwartz, S., transistor characteristics, 1239
- Schwarz, R. F., with others, rectification properties of metal/semiconductor contacts, 157
- Schweimler, H. C., with others, magnetic indications of electronic structure in Ge, 472; hydrogen in Ge and Si, 3776; magnetic susceptibility of Ge, 1451
- Schwink, C., electron-optical shadow technique, 1515; position of poles in magnetized Ni wire, 1466
- Ščibor-Marchocki, R. L., analysis of 'hypex horns', 658
- Sclar, N., and R. L. McFolin, sawtooth pulser gives voltage/current curves, 862
- Scollay, C. I. C., with G. W. G. Court, saturable-reactor frequency divider, 359
- Scolnik, R., with others, (O1) 5577A line in night airglow, altitude of, 3368, and sodium D layers, 3369
- Scott, R. F., 1955-56 TV receivers in U.S.A., 2234
- Scott, T. R., Transistors and Other Crystal Valves, (B)2592
- Scotto, M., and P. Parzen, excitation of space-charge waves, 2912
- Scroggie, M. G., low-distortion f.m. discriminator, 1861; unconventional f.m. receiver, 2524
- Seaman, M. S., with F. A. Benson, saturated diodes, (D)1596; a.c. voltage stabilizer, 2887
- Searle, W. M., with others, ferrite modulator using feedback, 3015
- Seaton, M. J., explanation of drop in F-region critical densities, 2057
- Secker, G. W., with J. N. Barry, radio interference measuring set using transistors, 1537
- Sedra, R. N., and I. B. Hazzaa, effect of solar flares on ionosphere, 423
- Seemann, F. W., with D. Hahn, temperature dependence of brightness waves in electroluminescence, 2761
- with others, brightness waves in luminescence of phosphors, 137
- Segmüller, A., texture of thin Zn and Ge films, 2459
- Seidel, H., with S. Weisbaum, field-displacement isolator, 3675
- Seiden, J., scattering of protons in synchrotron, 2185
- Sekido, Y., and others, magnetic storms, solar phenomena and cosmic-ray storms, 1708
- Sekizawa, H., with others, uniaxial anisotropy in Fe-Co ferrites, 1467
- Seliger, H. H., with C. A. Ziegler, hysteresis effect in multiplier phototube noise, 929
- Sellen, J. M., Jr, with M. J. Horavcsik, gas scattering in strong-focusing synchrotron, 1840
- Selzer, E., overdamped galvanometers as partial fluxmeters, 2487
- Semennikov, Yu. B., with others, electron-acoustic image converter, 2184
- Semiletov, S. A., with others, structure of $Tl_3Sb_2Se_3$, 2448
- Sen, H. K., magnetohydrodynamic shock wave in plasma, 2701
- and M. L. White, excitation of gravitational oscillations, 1404
- Sena, L. A., and N. S. Taube, contact phenomena in plasma, 3339
- Sennett, F. E., with others, dielectric properties in system $MgO-CaO-SnO_2-TiO_2$, 191
- Septier, A., four-pole magnetic lens for very-high-energy particles, 3849
- with others, Optique électronique I: Lentilles électroniques, (B)3507
- Serniuk, W., with others, multiple-frequency-shift teletype systems, 564
- Serres, A., with others, induced ferromagnetism by addition of Li ions to NiO, 2454
- Servant, R., and J. Gougeon, birefringence of paper at 9.35 Mc/s, 3140
- Servigné, M., P. Guérin de Montgareuil and D. Dominé, analysis of impurities in gases, 3349
- Sette, D., with V. Andresciani, nuclear-resonance meter for magnetic flux, 3480
- with G. Della Pergola, action of etchants on Ge, 2106; apparatus for measurements on semiconductors, 3444
- Setterwall, M., mechanical binary-decimal converter, 1966
- Setton, R., relays with inactive zone and hysteresis, 1979
- Setty, C. S. C. K., with others, production and loss of electrons in ionosphere, 2724
- Severin, H., with E. Meyer, absorption of cm- λ waves, 3037
- Sewter, J. B., and D. Wray, balanced equalizer-amplifier for transmitting video signals, 275
- with M. B. Williams, circuits for television outside broadcasts, 2545
- Sfrazzatta, F. J., travelling-wave resonator, 1325
- Shafrazova-Ekertova, L. I., conductivity of Sb-Cs layer, 2417
- Shain, C. A., location on Jupiter of radio source, 406; absorption of cosmic noise during ionospheric disturbances, 1411; 18.3-Mc/s radiation from Jupiter, 2710
- Shakhsuvarov, D. N., with A. N. Tikhonov, e.m. fields in stratified media, 3036; using e.m. field of earth for investigating upper layers, 3839
- Shalyt, S. S., with others, photomagnetolectric effect in Cu_2O at low temperatures, 822
- Shannon, C. E., and D. W. Hagelbarger, concavity of resistance functions, 1635
- Sharma, S. K., with others, ionospheric observations at Banaras during solar eclipse, 2514
- Sharp, L. W. D., vibratory-power-supply techniques, 1216
- Sharpe, L., with J. C. Webster, improvements in message reception, 1287
- Shatas, R. A., J. F. Marshall and M. A. Pomerantz, dependence of secondary-electron emission on angle of incidence of primaries, 3343

- with others, conductivity induced in MgO crystals by electron bombardment, 158
- Shatlov, A. V.**, with N. A. Tolstol, relaxation curves of luminescence and photoconductivity, 3076
- Shaw, E. A. G.**, electromechanical coupling coefficients in piezoelectric vibrator, 647; vibrations of thick BaTiO₃ disks, 1936
- Shchaenko, V. V.**, with Z. A. Trapeznikova, ZnS phosphors activated with rare-earth elements, 2080
- Shearman, E. D. R.**, ground back-scatter, propagation by, 1854, ionospheric investigation using, 1855
- and L. T. J. Martin, back-scatter ionospheric sounder, 3197
- Sheffield, H. C.**, microwave relay system, 2537
- Shenfeld, S.**, and M. Finkle, storage-tube device simulates radar net, 2077
- Shepherd, A. A.**, with others, Si-junction power diodes, 3889
- Sher, I. H.**, methods of obtaining least-squares lines, 2469
- Sheridan, K. V.**, with others, absorption of 3.5-m radiation in nebula NGC 6357, 1395; r.f. emission from novae and supernovae, 2708
- Sheriff, R. M.**, total electron content of F region over Ahmedabad, 2055
- Sherman, K. I.**, with others, transistor pulse generators, 358; transistor generator simulates radar target, 2496
- Sherry, N. P. R.**, with L. F. Bates, reversible and irreversible components of magnetothermal effect, 823
- with L. C. F. Blackman, anomalous time-constant of MgMn ferrites, 1468
- Sherwin, C. W.**, and others, detection of signals by human and electronic detector, 3609
- Sherwood, E. M.**, with others, preparation of high-purity thorium, 2144
- Shevchik, V. N.**, theory of multiresonator magnetron, 2577
- Shibata, N.**, with others, dissociation of BaO under electron bombardment, 3260
- Shibuya, M.**, 'hot-electron' problems in semiconductors, 464
- Shil'krut, D. I.**, logarithmic decrement and fractional attenuation of potential energy, 708
- Shilliday, T. S.**, with others, high-temperature TiO₂ rectifiers, 1218
- Shimada, J.**, with others, magnetic resonance in α -Fe₂O₃, 486
- Shimauchi, A.**, with others, observation of nuclear resonances with coaxial-cavity spectrometer, 1696
- Shimazaki, T.**, F₂ layer, height of maximum electron density of, 419, structure of, 3050
- Shimoda, K.**, and T. C. Wang, hyperfine structure of NH₃, 1693
- T. C. Wang and C. H. Townies, theory of maser, 3710
- Shindo, T.**, theory of dislocation in Ge, 3427
- Shinn, D. H.**, tables of group refractive index for ordinary ray, 755
- Shipek, C. J.**, with others, acoustic properties of shallow-water sediments, 1930
- Shipman, J. S.**, theory of noise through nonlinear devices, 509
- with others, tables of Bennett functions for two-frequency modulation product, 2213
- Shipov, V. A.**, Smirnov and P. Popov, radio literature in U.S.S.R., 2269
- Shirane, G.**, F. Jona and R. Pepinsky, aspects of ferroelectricity, 785
- R. Pepinsky and B. C. Frazer, diffraction study of PbTiO₃, 2771
- with others, ferroelectricity in alums, 3404
- Shklovski, I. S.**, radiation from galaxy NGC 4486, 3356
- with others, emitters of cosmic radio emission on λ 3.2 cm, 1044
- Shmoys, J.**, long-range propagation of low-frequency waves, 1529
- and S. N. Karp, calculation of charge-density distribution from transit-time data, 3382
- Shockley, W.**, transistor physics, 1458
- Sholokhova, E. D.**, with S. F. Kodionov, sky brightness during solar eclipse, 1795
- Sholokhovitch, M. L.**, with others, single crystals of Ba and Sr titanate solid solutions, 3757
- Shone, A. B.**, synchronization of television picture sources, 283
- Short, M. A.**, and E. G. Steward, X-ray powder diffraction data for ZnS, 1735
- E. G. Steward and T. B. Tomlinson, electroluminescence in disordered ZnS, 1736
- Short, O. A.**, silver migration in electric circuits, 3127
- Short, P. J.**, with others, probability distribution of constant vector plus Rayleigh-distributed vector, 197, 234
- Shorter, D. E. L.**, and H. D. Harwood, ribbon-type pressure-gradient microphone, 1607
- Shrader, R. E.**, with S. Larach, electroluminescence from boron nitride, 3081
- Shraifeld, T. Ya.**, with L. L. Korenblit, theory of high-conductivity semiconductors, 2094
- Shuleikin, V. V.**, and L. A. Kornova, winds in the ionosphere, 2734
- Shulman, A.**, p.p.i. display uses precision interlace, 2398
- Shul'man, A. R.**, secondary emission from dielectrics, 3344
- and B. P. Dement'ev, secondary emission from alkali halide crystals, 3695
- and I. I. Farbshtein, scattering of electrons by Ni and Mo targets, 719
- and A. N. Pisarevski, temperature variations of work function of Ge, 2795
- and A. P. Rumyantsev, thermionic emission properties of ThO and Th, 3259
- Shulman, R. G.**, hole trapping in Ge, 3780
- and B. J. Wyluda, Cu in Ge: recombination and trapping centres, 3781
- J. M. Mays and D. W. McCall, nuclear magnetic resonance in InSb and GaSb, 1107
- Shultz, R. S.**, and W. R. Waltz, functional divisions for electronic equipment, 1267
- Shumway, G.**, with others, acoustic properties of shallow-water sediments, 1930
- Shur, Ya. S.**, and V. R. Abel's, Si-Fe crystals, magnetic structure of, 824, nucleation centres in, 1464
- Shurmer, H. V.**, standing-wave detector for low power levels, 215
- Sichak, W.**, and D. J. Levine, microwave high-speed continuous phase shifter, 321
- with F. J. Altman, simplified diversity system for beyond-horizon links, 3185
- Sideriades, L.**, flip-flop with four equilibrium positions, 2339; nonlinear coupled systems, 2666
- Sidorowicz, R. S.**, generation of rectangular pulses, 2338
- Siedentopf, H.**, with H. Elsässer, height of emission of 5577 line of air-glow, 2738
- Siekawicz, W. W.**, and F. Sterzer, travelling-wave amplifier with periodic permanent magnets, 1251
- Siforov, V. I.**, interference stability of systems with correcting codes, 3876
- Silin, V. P.**, with V. L. Ginzburg, conductivity and skin effect in metals, 711
- Sillars, R. W.**, effect of field emission on semiconductor contacts, 1084
- Sils, V.**, with others, densities and imperfections of single crystals, 838
- Silverman, R. A.**, scattering from eddies, 234; turbulent-mixing theory applied to radio scattering, 3853
- Simkins, Q. W.**, and J. H. Vogelsong, transistor amplifiers for digital computers, 1014
- Simon, J. C.**, problems of fluctuation in radio, 1925
- Simon, L.**, with A. Ross, gate selects pulses for analysis, 3313
- Simonyi, K.**, particle accelerators for a few MeV, 3845
- Simpson, A. W.**, with L. F. Bates, thermal effects associated with magnetization, 1130
- Simpson, J. A.**, F. Jory and M. Pyka, deriving geomagnetic dipole-field coordinates from cosmic-ray observations, 2371
- and others, effective geomagnetic equator, 3721
- with others, electron scattering measurements, 849
- Simpson, L. C.**, with others, system parameters using tropospheric scatter propagation, 567, 3185
- Simpson, O.**, with D. C. Northrop, electronic properties of aromatic hydrocarbons, 2093
- Sims, G. D.**, and D. Gabor, theory of pre-oscillating magnetron, 938
- with D. Gabor, magnetron theory, (D)1586
- Singer, E. N.**, and H. R. Caler, broadband aerial, 1305
- Sinha, N. K.**, with J. Willis, nonuniform lines as impedance-matching sections, 664, 1614; impedance transformers, 3277
- Sinno, K.**, disturbances in F₂ layer associated with geomagnetic disturbances, 426, 1720
- Sinton, W. M.**, solar and lunar radiation at 1.5 mm, 1704
- Sirkis, M. D.**, with P. D. Coleman, harmonotron for producing mm- λ and sub-mm- λ waves, 1000
- Sirvetz, M. H.**, and J. H. Saunders, resonance widths in Ni-Co ferrites, 3119
- Sitenko, A. G.**, with A. I. Akhiezer, plasma oscillations in external field, 3018
- Sivertsen, E.**, with others, intelligibility of diphasic speech, 2942
- Skalicky, M.**, equivalent circuit of transistor, 928
- Skalnik, J. G.**, transient behaviour in a ferromagnetic circuit, 2986
- Skal'skaya, I. P.**, field inside paraboloidal reflector, 3648
- with others, r.m. field of linear radiator inside parabolic reflector, 3650
- Skanavi, G. L.**, and A. M. Kashtanova, semiconducting ceramics based on WO₃, 3109
- Skeib, G.**, propagation of sound in turbulent atmosphere, 307; influence of solar eclipse on propagation of atmospherics, 1400
- Skinner, N. J.**, and R. W. Wright, recombination and ion production, 113; equatorial ionospheric absorption, 3855
- with others, spread F-layer echoes and radio-star scintillations, 2731
- Skinner, R. I.**, noise sources using gas-discharge tubes, 3147
- Skinner, S. M.**, J. Gaynor and G. W. Sohl, e.s. charges in plastics, 2684
- Skobelkin, V. I.**, and R. N. Solomko, magnetostatics with ferromagnetic materials, 83
- Skribeland, S.**, with others, ionospheric observations during solar eclipse, 3379
- Skwirzynski, J. K.**, with K. G. Pancourt, simple frequency discriminator, 3325
- Slater, L. J.**, table of Laguerre polynomials, 2465
- Slee, O. B.**, intensity variations of r.f. source Hydra-A, 1701
- with others, galactic survey at 400 Mc/s, 735
- Slepián, D.**, binary signalling alphabets, 1865
- Slichter, C. P.**, spin resonance of impurity atoms in Si, 151
- with D. Pines, relaxation times in magnetic resonance, 1388
- Slifkin, L.**, with others, self-diffusion in Ge, 3429
- Slutsker, A. I.**, with P. F. Veselovski, relaxation processes in polyvinyl acetate, 1477
- Smakula, A.**, J. Kalnajs and V. Sils, densities and imperfections of single crystals, 838
- Smales, A. A.**, comparison of methods for determination of trace impurities in semiconductors, 796
- Small, A. M., Jr.**, parameters influencing pitch, 7
- Small, G. F.**, with R. G. Medhurst, echo distortion in f.m. frequency-division multiplex, 1867, (D)3214
- Smart, D.**, method of deriving negative feedback in transmitters, 2556
- Smart, J. S.**, application of Bethe-Weiss method to ferrimagnetism, 2026
- Smirnit'skaya, G. V.**, with others, ionic pumps with cold electrodes, 3748
- Smirnov, A.**, with others, radio literature in U.S.S.R., 2269
- Smirnov, N. N.**, propagation of waves along helix, 3276
- Smirnov, V. A.**, nonlinear distortions in multichannel communication systems, 3216

- Smit, J., spontaneous Hall effect in ferromagnetics, 1465
- Smith, J. G., propagation of e.m. waves in conducting media, 2868
- Smith, D. L. A., with M. B. Martin, magnetic recording equipment for stereophonic reproduction, 1609
- Smith, D. O., magnetization of magnetic single crystal, 3449; vibrating-coil magnetometer, 3483
- Smith, E. K., with others, developments in vibration measurement, 225
- Smith, F. G., search for radiation from Jupiter, 2036
- Smith, G. F., thermionic emission from tungsten, 1367
- Smith, H. W., with others, radio signals on overwater paths, 1530
- Smith, J. M., with F. W. Ruppert, airborne weather radar, 1426
- Smith, J. W., with K. M. Ringoen, v.h.f. trans-horizon communication techniques, 2532
- with others, multipath simulator tests communications, 3191
- Smith, K. C. A., and C. W. Oatley, scanning electron microscope, 1179
- with J. W. Allen, electron microscopy of etched Ge surfaces, 1447
- Smith, M., radio and television interference, 3867
- Smith, P. F., atmospherics analyser, 1196
- Smith, P. L., with others, optical properties of deformed Ge, 154
- Smith, P. W., Jr, characteristics of free waves in cylindrical shell, 1275
- Smith, R. A., Radar Research Establishment, Malvern, 3596
- Smith, R. A., with others, the 'nose' whistle, 2393
- Smith, R. S., dielectric constant of heterogeneous media, 3760
- Smith, R. W., edge electroluminescence from ZnS, 1071
- Smith, S. J., and L. M. Branscomb, negative-ion-photodetachment cross-section, 396
- with L. M. Branscomb, negative oxygen ions in upper atmosphere, 3053
- Smith, V. G., W. A. Tiller and J. W. Rutter, mathematical analysis of solute redistribution, 1758
- Smith-Rose, R. L., radio communication by wave scattering, 233; international research in radio astronomy, 1043
- Smolenski, G. A., ferroelectrics and antiferroelectrics of oxygen-octahedral type, 2770
- V. A. Isupov and A. I. Agranovskaya, high permittivity of niobates and tantalates, 3402
- and others, ferroelectric properties of stannates, 3405
- Smolinski, A., amplifiers with triple-tuned coupled circuits, 3318
- Smorodina, T. A., with I. M. Bronshtein, secondary emission, from Be, 1679, from Ag, 1680
- Snow, C., formulas for computing capacitance and inductance, 1318
- Soanes, S. V., serial digital decoder, 2632
- Sobel, M., reducing experiment time in reliability studies, 1803
- Sochard, I., with others, photoelectromagnetic effect in CdS, 2404
- Sohl, G. W., with others, e.s. charges in plastics, 2684
- Sokolov, A. V., with others, photoelectric effect in metals, 373
- Soldi, M., and M. Valeriani, transistor circuit for resonance-coefficient multiplier, 1013
- Sollenberger, T. E., multipath phase errors in c.w. f.m. tracking systems, 2748
- Sollom, P. H., and J. Brown, em- λ parallel-plate spectrometer, 2478
- Solntsev, G. S., and M. M. Dmitrieva, two-electrode h.f. discharge, 2689
- Solomko, R. N., with V. I. Skobelkin, magnetostatics with ferromagnetic materials, 83
- Solomon, L. N., with J. C. Webster, response complexity in listening to competing messages, 1288
- Solomon, S. S., space-charge waves in crossed fields, 1585
- Solov'ev, E. G., waveguides with longitudinal diaphragms, 978; propagation between cylindrical surfaces with longitudinal diaphragms, 3280
- Solov'ev, V. A., and I. G. Mikhailov, theory of compound piezoelectric vibrator, 2770
- Soma, S., with S. Fuse, field intensity measuring, 2525
- Somerville, M. J., a.c. potentiometer for measurement of amplitude and phase, 3148; circuit for analogue formation of xy/z , 3655
- Somerville, T., monitoring sound broadcast programs, 2221
- Sominski, M. S., with A. K. Regel', effect of impurities on conduction mechanism of AlSb, 1106
- Sommer, A. H., high-sensitivity photoemissive cathodes, 608
- Sommers, H. S., Jr, R. E. Berry and I. Sochard, photoelectromagnetic effect in CdS, 2404
- Sondheimer, E. H., with R. Engelman, conductivity of anisotropic thin films, 3084
- Sonnenfeldt, R. W., with T. Murakami, detectors in symmetric- and asymmetric-sideband systems, 1566
- Sorokine, W., long-distance television reception in U.S.S.R., 3523
- Southwick, R. D., with H. B. Huntington, ultrasonic velocities in BaTiO₃ ceramics, 144
- Southworth, G. C., history of radio astronomy, 2706
- Soutif-Guicherd, J., circularly polarized waves in gyroparamagnetic medium, 2289; Faraday effect in gyroparamagnetic medium, 2618
- Sovetov, N. M., with E. V. Anisimov, propagation along helical strip, 2955
- Spachner, S., and W. Rostoker, loss of texture in Ni-Fe alloy tapes, 483
- Spandöck, F., electroacoustic transducers, 656
- Spear, W. E., electron bombardment effects in thin dielectric layers, 1778
- Spearman, F. R. J., and others, tridac analogue computer, 2300
- Speck, F., with others, balloon-borne system for tracking sun, 3844
- Spedding, F. H., with others, magnetic properties of erbium, 1787
- Spencer, C. W., and G. H. Bazzard, semi-automatic pen-recorder chart analyser, 3822
- Spencer, D. E., with P. Moon, Ampère force, 1371; differential equations of field theory, 3820
- Spencer, E. G., R. C. LeCraw and F. Reggia, microwave measurements on ferrite spheres, 2846
- Spencer, J. G., with G. F. Newell, photographic records of effect of noise on television picture, 1234
- with others, v.h.f./u.h.f. field-strength recording receiver, 3528
- Spencer, M., shape of irregularities in upper ionosphere, 121
- with B. H. Briggs, variability of time shifts in measurements of ionospheric movements, 755
- with G. J. Phillips, effects of amplitude patterns in measurement of ionospheric drifts, 120
- Spencer, R. C., and others, double-parabolic-cylinder aerial, 985
- Spengler, H., sub-group-B metal compounds with Ga, 187
- Spenke, E., Elektronische Halbleiter, (B)504
- Spicer, B. M., and A. S. Penfold, energy stability of 22-MeV betatron, 1176
- Spicer, C. E., 'vitascan' colour TV scanner, 3228
- Spies, S., theorem on two-pole networks, 38
- Spith, W., and J. C. Webster, listening to filtered voice messages, 650
- Spitzer, W. G., and H. Y. Fan, infrared absorption in InSb, 814
- with others, infrared absorption in n-type Ge, 2110
- Spivak, C. V., I. N. Prilezhaeva and V. K. Azovtsev, electron mirrors and observation of domains in ferromagnetic materials, 1794
- and others, depiction of domains of ferromagnetic material, 1793
- Spooner, A. M., electronic switches for television, 2551
- Sprenger, K., and E. A. Lauter, observations of lower ionosphere during solar eclipse, 2062
- Springer, A. M., time regulator for sound recordings, 2952
- Srdoc, D., oxygen-quenched G-M counter, 3505
- Sretenski, L. N., emission of sound by rotating dipole, 3266
- Srinivasan, N. R., and H. S. Aswath, contact angle in soldering, 1479
- Srivastava, C. M., propagation of radio atmospherics, 3189
- Srivastava, R. B. L., with S. N. Mitra, analysis of sky-wave field intensity, 1852
- Stäblein, H. G., propagation of long-wave atmospherics, 231
- Stacey, D. S., with R. A. Nidey, photoelectric angular-error sensors, 3162
- Stacey, F. D., fluctuating-field model of ferromagnetism, 1462; behaviour of ferromagnetics under compression, 3115
- de Stadelhofen, J. Meyer. See Meyer de Stadelhofen, J.
- Stairmand, G. D., with J. E. Parton, magnetic flux probe, 1817
- Stamps, G. M., with others, multipath simulator tests communications, 3191
- Standing, A. F., power-pack design, 912
- Standley, K. J., and K. H. Reich, ferromagnetic resonance in Ni and its alloys, 829
- Stanesby, H., review of communication systems, 1541
- with F. J. M. Laver, reciprocal transmission over long-distance radio circuits, 1857
- Stankevich, K. S., with others, 91·6-cm radiation of deuterium in galaxy, 408
- Stanley, G. J., and R. Price, radio emission of deuterium from galaxy, 3039
- with others, galactic survey at 400 Mc/s, 735
- Star, M., with others, encoding colour for telecasting, 588
- Staras, H., forward scattering by anisotropic turbulence, 239; diversity reception with correlated signals, 1862; statistics of combiner diversity, 3525
- Stark, K. H., and C. G. Garton, electric strength of irradiated polythene, 1146
- Starke, H. F., transistor pre-amplifiers, 3323
- Statton, W. O., with L. C. Hoffman, structure in vitreous silicates, 190
- Statz, H., and others, surface states on Si and Ge surfaces, 2434
- with H. Schenkel, junction transistors with $\alpha > 1$, 1893
- Staub, T., construction of shockproof measurement instruments, 853
- Stavitskaya, T. S., with others, thermoelectric cooling, 3224
- Stebbins, D. W., with R. W. Decker, work functions of La, Pr and Nd borides, 167
- Steele, J. McA., standard-frequency monitor at N.P.L., (D)516
- Steen-Andersen, K., coverage of TV and f.m. stations, 1532
- Stehle, P., particle transport in magnetically immobilized plasma, 1030
- Stein, R., and B. Reuter, photo-effect in PbS, 3249
- Steinberg, J. L., with others, atmospheric absorption at 9·35 kmCs, 2737
- Steinberger, I. T., W. Low and E. Alexander, influence of alternating electric fields on light emission of phosphors, 446
- Steinemann, A., with others, dielectric properties of ice, 377
- Stephens, R. B., mains-voltage stabilizers, 1870
- Stephenson, B. T., and C. H. Walter, end-fire slot aerials, 1306
- Stephenson, C. V., radial vibrations in short BaTiO₃ cylinders, 1937
- Stephenson, L. M., with H. E. M. Barlow, Hall effect and application to power measurement, 1488
- Stephenson, W. L., junction-transistor noise at 7-50 kc/s, 606
- Stern, F., and R. M. Talley, impurity band in semiconductors with small effective mass, 1748
- with R. Talley, degeneracy effect in InAs, 145
- Sternberg, R. L., design of microwave lenses, 2298
- J. S. Shipman and H. Kaufman, tables of Bennett functions for two-frequency modulation product, 2213
- Sternberg, S., electronic multiplier, 1312
- Sternglass, E. J., electron multiplication by transmission secondary emission, 1896
- Sterzer, F., with W. W. Siekanowicz, travelling-wave amplifier with periodic permanent magnets, 1251
- Stetter, W., with W. Guber, optical method for determining grid-cathode spacing, 2569
- Stevens, J. M., with A. Kats, effect of radiation on SiO₂, 3460
- with J. Volger, polarizability of colour centres in quartz and glasses, 2768
- with others, dielectric losses of quartz, 451
- Stevens, D. K., and J. H. Crawford, Jr, magnetic susceptibility of InSb, 163
- and others, magnetic susceptibility of Ge, 1451

- with others, magnetic indications of electronic structure in Ge, 472; hydrogen in Ge and Si, 376
- Stevens, K. N.**, with A. S. House, testing description of vowel articulation, 653
- Stevens, K. W. H.**, population changes with magnetic field, 2806
- Stevens, S. S.**, measurement of loudness, 654
- Steward, E. G.**, with M. A. Short, X-ray powder diffraction data for ZnS, 1735
- with others, electroluminescence in disordered ZnS, 1736
- Stewart, C.**, applications of ferrite at 0.87 and 1.9 cm λ , 1957
- Stewart, J. L.**, f.m. noise in oscillators, 1649
- Stewart, R. M.**, filters for restoration of sampled data, 1331
- Stewartson, K.**, motion of sphere in presence of magnetic field, 3352
- Stickler, J. J.**, with others, rectification properties of metal/semiconductor contacts, 157
- Stier, H.**, P. Lindner and E. Kosche, flying-spot scanning, 2233
- Stil'bans, L. S.**, E. K. Iordaniashvili and T. S. Stavitskaya, thermoelectric cooling, 3224
- with R. M. Vlasova, thermoelectric properties of Bi₂Te₃, 1083
- with others, semiconductor thermocouples, 2430
- Striand, D. J.**, with D. S. Campbell, examination of etched crystals of BaTiO₃, 2414
- Stockman, C. H.**, with others, mathematics of zone melting, 1141
- Stöckmann, F.**, negative photoeffects in semiconductors, 1754
- Stoffregen, W.**, variation of f_B during eclipses, 115
- Stöhr, W.**, with H. Laub, horn-parabola wide-band aerials, 2628
- Stolk, J.**, with J. C. van den Hoogenband, impedance measurements by long line, 1158
- Stoll, S. J.**, origin of gas in electron tubes, 2906
- Stone, H. A., Jr.**, with R. S. Duncan, application of ferrites to inductor design, 995
- Stössel, W.**, with others, single crystals with pure surfaces, 1140
- Stout, V. L.**, and M. D. Gibbons, gettering by Ti, 1428
- Strafford, F. R. W.**, dual-band television aerials, 329
- Straiton, A. W.**, with others, radio signals on overwater paths, 1530
- Strakhov, L. P.**, with others, photo-e.m.f. of PbS photocells, 3251
- Strashkevich, A. M.**, theory of deflector, 3591
- and A. S. Reyzlin, electron optical action of grid systems, 634
- Stratmann, H. G.**, exciters multiplex f.m. carriers, 3558
- Stratonovich, R. L.**, with others, effect of electrical fluctuations on oscillator, 55
- Stratton, J. A.**, and others, Spheroidal Wave Functions, (B)3133
- Stratton, R.**, field emission from semiconductors, 717; semiconductor contacts, effect of field emission on, 3091, surface barriers at, 3410
- with R. P. Chasmar, effective electron mass in InAs and InSb, 3793
- Straughan, B. W.**, with W. Bardsley, spiral etch pits in Si, 2788
- Strauss, S. W.**, resistivity of vitreous silicates, 3129
- and others, resistivity of vitreous ternary lead silicates, 2827
- Strosche, H.**, CdSe layers in Se rectifiers, 165
- Stroud, W. G.**, W. Nordberg and J. R. Walsh, atmospheric temperatures and winds, 2376
- Strutinski, N. I.**, with Ya. M. Turover, application of Tchebycheff polynomials, 3630
- Strutt, J. M. O.**, with W. Guggenbühl, spontaneous fluctuations in semiconductor barrier layers, 1894
- Struven, W. C.**, with W. M. Brobeck, bevatron frequency measurement system, 2483
- Strzalkowski, A.**, with others, solar radio radiation during eclipse, 3363
- Stuart, M. R.**, dielectric constant of quartz, 1474
- Stuckes, A. D.**, Johnsen-Rahbek effect, 1670
- Studer, F. J.**, and D. A. Cusano, transparent phosphor coatings, 444
- Stull, J. L.**, with others, magnetostriction and permeability of magnetite and Co-substituted magnetite, 494
- Sturley, K. R.**, ratio detector, 252
- Styles, H. E.**, sensitive t.r.f. receiver, 554
- Su, K. L.**, and B. J. Dasher, approximation problem for KC low-pass filters, 2993
- Subrahmanyam, D. L.**, with others, intelligibility of diphasic speech, 2942
- Suchy, K.**, with F. Delobean, ionospheric absorption at Dakar, 3513
- Sucksmith, W.**, and S. P. Anderson, general-purpose electromagnet, 3711
- Sueker, K. H.**, etched wiring simplifies magnetic amplifier design, 64
- Sugar, G. R.**, fading characteristics of regular v.h.f. ionospheric propagation, 234
- Sugawara, M.**, time lag in vacuum phototubes, 2905, 3567
- Suguri, Y.**, T. Ichida and K. Harada, time-signal generator using decade tubes, 1657
- Suhl, H.**, L. G. Van Uitert and J. L. Davis, ferromagnetic resonance in Mg-Mn-Al ferrite, 491
- with others, line width in ferromagnetic resonance, 2033
- Suhrmann, R.**, electronic interaction between adsorbed gas molecules and metal surfaces, 1672; response of diode circuits to pulses, 1883
- Suita, T.**, with D. A. Powers, pre-breakdown current and noise in insulators, 845
- Sullivan, M. V.**, and J. H. Eigler, electrolytic-stream etching of Ge, 2797; metal hydrides as alloying agents on Si, 3818
- Sullivan, R. F.**, and R. C. LeCraw, ferrite microwave switch, 679
- Sulzer, P. G.**, pulse-transmission measurements over 2400-km path, 1524
- Sumoto, I.**, phenomenon observed on some dielectrics, 71
- Suozzi, J. J.**, magnetic-amplifier two-speed servo system, 1552
- Suran, J. J.**, circuit theory of double-base diode, 3562
- with S. P. Lapin, impulse noise in f.t.u. receivers, 2523
- Surange, P. G.**, with others, ionospheric observations at Banaras during solar eclipse, 2514
- Süss, R.**, with others, quartz clocks at the Physikalisch-Technische Bundesanstalt, 3468
- Sutcliffe, H.**, noise measurements in 3-cm waveband, 3825
- Sutherland, D. M.**, saturated diodes, (D)1596
- Suzuki, M.**, with others, stabilization of Type-MR-103 capacitor microphone, 2276; application of titanium to acoustic instruments, 3810
- Svenningsen, K.**, coast stations in Denmark, 3221
- Svenson, A. C.**, with J. A. Thomas, lunar tide in sporadic E, 1717
- with others, ionospheric recorders and sporadic E, 2730
- Sverdlov, Yu. L.**, with M. E. Zhabotinski, operation of amplitude limiter, 3676
- Swanson, J. A.**, saturation Hall constant of semiconductors, 801
- with others, Hall effect and conductivity in porous media, 3761
- Swarup, G.**, and R. Parthasarathy, solar brightness distribution at 60 cm, 1707
- Swerling, P.**, angular accuracy of pulsed search radar, 3747
- Swern, L.**, with B. J. Duncan, temperature behaviour of ferrites in waveguide, 2291
- Swift, J.**, disk-seal circuit technique, 1658
- Swiggard, E. M.**, with others, BaTiO(C₂O₄)₂ · 4H₂O for BaTiO₃, 3399
- Symonds, J. L.**, measuring strong magnetic fields, 2162
- Syui Syui-Yun**, capture and recombination cross-sections in ZnS-Cu, Co phosphors, 442, 2407
- Syun-ichi Akasofu**. See Akasofu, Syun-ichi.
- Székely, A.**, amplifier action of gas-filled triodes, 954
- Szendrei, M. E.**, and M. W. McElhinny, solar eclipse 25th December 1954, 2061, recomoination in F layer during, 3733
- Tachiki, M.**, with others, thermal transition of transparency in BaTiO₃, 453
- Taft, E.**, and L. Apker, photoelectric emission from graphite, 771
- Tager, P. G.**, stereophonic two-channel transmission, 968
- Taguchi, S.**, with others, spread echoes in F region over Japan, 1713
- Tai, C. T.**, integral equation formulation of cylindrical aerials, 1617
- Takahara, K.**, and others, 40–50-Mc/s overtone quartz units, 2330
- Takahashi, H.**, with W. Kinase, spontaneous deformation of BaTiO₃, 1742
- Takahashi, T.**, and M. Arai, wide-band v.h.f. wattmeter, 534
- with others, discriminating disturbances in solar noise observation, 741; measurement of spurious emissions, 1811
- Takaku, K.**, with Y. Nomura, propagation of e.m. waves in inhomogeneous atmosphere, 545
- Talantsev, A. D.**, diode function simulators, 2970
- with others, electronic analogue apparatus of U.S.S.R. Academy of Sciences, 2636
- Talbot, A.**, properties of networks without mutual inductance, 41
- Talkin, A. I.**, and J. V. Cuneo, cascaded distributed amplifiers, 361
- Tall, M. M.**, with W. Harris, prediction of electronic equipment reliability, 1926
- Talley, R. M.**, and F. Stern, degeneracy effect in InAs, 145
- with F. Stern, impurity band in semiconductors with small effective mass, 1748
- Tamarkin, P.**, with E. O. LaCase, Jr, underwater sound reflection from corrugated surface, 1938
- with others, propagation of sound pulses in dispersive medium, 1931
- Tanabe, H.**, with others, photoelectric studies of night sky light, 1714
- Tanaka, H.**, with others, solar enhanced region at cm- λ from eclipse observations, 2043
- Tanaka, S.**, T. Masumi and S. Iijima, photocurrent of CdS in magnetic field, 2756
- Tandberg-Hanssen, E.**, with others, r.f. observations of solar eclipse 30th June 1954, 3719
- Tandon, J. N.**, geomagnetic activity and M regions, 3364
- with A. M. Naqvi, identification of radio stars, 1394
- Tanenbaum, M.**, and D. E. Thomas, diffused emitter and base Si transistors, 1890
- with others, *p-n-p-n* transistor switches, 3899
- Tani, K.**, with others, energy dissipation of conduction electrons, 3020
- Taniguchi, S.**, ferromagnetic anisotropy induced by magnetic annealing, 177
- with others, domain structure in cubic solid solutions, 3802
- Tannenwald, P. E.**, multiple resonances in cobalt ferrite, 172; ferromagnetic resonance in Mn ferrite, 1791
- with J. O. Artman, susceptibility tensor in ferrites, 495
- Tao, K.**, relation between field strength and structure of atmosphere, 897; ultra-short waves, propagation beyond horizon, 1858, field strength at night, 3198
- Tarbes, P.**, CdS photoresistances, 2248
- Tarnowski, N. N.**, with B. I. Boltaks, electrical characteristics of CuFeS₂, 164
- Tartakowski, B. D.**, symposium on electroacoustics, 2608; sound coverage of open space, 3628
- Tartakowski, L. B.**, and A. M. Pokras, periscopic aerial system, 3646
- Tarui, Y.**, with M. Kikuchi, 'step' phenomena in A-type transistors, 603
- Tatarski, V. I.**, wave propagated in slightly inhomogeneous atmosphere, 2869
- Taub, H.**, and others, encoding colour for telecasting, 588
- Taube, N. S.**, with L. A. Sena, contact phenomena in plasma, 3339
- Tauer, K. J.**, with R. J. Weiss, thermodynamic functions of iron, 3807
- Tavernier, J.**, carrier mobility in InSb, 3443
- Taylor, B. R.**, and R. Bird, gas-filled diode as digital storage element, 1972
- Taylor, E. A.**, production of large crystals, 2416
- Taylor, H. E.**, determination of resistance of glass, 521
- Taylor, J. B.**, with G. F. Alfrey, electroluminescence in ZnS, 781
- Taylor, J. G.**, electrostatics as distribution theory, 2027

- Taylor, J. G. V., with others, reliability of atomic masses in Cr-Ge region, 96
- Taylor, J. H., pressure dependence of energy gap for InAs, 1771
- Taylor, K. M., boron nitride, 2462
- Taylor, P. H. J., with H. F. Woodman, facsimile communication, 2190
- Taylor, T. T., line-source aeriels for narrow beam width, 984
- Teas, D. C., with others, localization of sound sources, 649
- Tebble, R. S., Barkhausen effect, 1685
- Teer, K., with J. Haantjes, compatible colour television, 1224
- Telford, M., T-stub calculations for transmission-line filters, 1332
- Tel'kovski, V. G., secondary emission under action of ions, 3341
- Templeton, I. M., superconducting modulator, 518; chart for crystal rectifier constants, 2241
- with others, resonant-cavity method for measuring resistivity, 2158
- Tenzen, R. K., apparatus for investigating aging in permanent magnets, 1816
- Teodorovich, K. F., with I. I. Minakova, synchronization of oscillations, 2333
- Teplova, A. P., V. M. Tuchkevich and A. I. Uvarov, input resistance and reactance of transistor amplifier, 3474
- Terada, J., X-ray study of Ba-Sr-Ca triple oxide, 627
- Terhune, R. W., with others, signal/noise ratios of photoconductive detectors, 2565
- Terol, S., and R. Ward, perovskite-type ternary oxides as luminophors, 1065
- Tewksbury, J. M., beam-deflection valve simplifies radio compass, 2396
- Tewardt, L., with others, magnetic blocking layer in semiconductors, 2100
- Thaler, G. J., and R. G. Brown, Servomechanism Analysis, (B)2544
- Thaler, S., with R. Boxer, solving linear and nonlinear systems, 999
- Thambyahpillai, T., with I. J. van Heerden, 27-day recurrence tendency of cosmic-ray intensity, 1045
- Thelle, R., and H. Fix, signal/noise ratio in television, 2897
- Theis, W., electron-optical investigations of Se, 2102
- Theissing, H. H., and P. J. Caplan, atmospheric attenuation of solar mm- λ radiation, 3041
- and J. McCue, λ measurement in mm region, 1827
- Thiele, A. N., design of filters with RC sections, 1329
- Thiessen, G. J., efficiency of line source with phase shift, 1280
- Thirup, G., 3-phase RC generators for measurements, 1159
- Thom, H. G., with H. Puppe, ratio: of plasroids in magnetic field, 2021
- Thomas, A., nuclear batteries, 1871
- Thomas, A. N., with others, Crystal Palace television station, 3895
- Thomas, D. E., tables of phase of semi-infinite unit attenuation slope, 2989
- with M. Tanenbaum, diffused emitter and base Si transistors, 1890
- Thomas, J. A., and R. W. E. McNicol, automatic recording of direction of arrival of radio waves, 543
- and A. C. Svenson, lunar tide in sporadic E, 1717
- A. C. Svenson and H. E. Brown, ionospheric recorders and sporadic E, 2730
- Thomas, J. E., Jr., and R. H. Rediker, surface recombination velocity in Ge, 2441
- Thomas, J. O., with E. R. Schmerling, distribution of electrons in undisturbed F₂ layer, 2726
- with others, production and loss of electrons in ionosphere, 2724
- Thomason, J. G., precision photographic timer, 1175; Linear Feedback Analysis, (B)3017
- Thompson, A. M., and D. G. Lampard, theorem in electrostatics and application to capacitance standards, 2837
- Thompson, A. R., with others, polarization measurements on radio sources, 3714
- Thompson, G. H. B., ferrites in waveguides, 2958
- Thompson, J. C., paramagnetic effect in superconducting Sn, In and Tl, 3446
- Thompson, L. G., with C. F. Devenny, Jr, ferromagnetic computer cores, 497
- Thompson, M. C., with J. C. Herbstreit, phase measurements over transmission paths with atmospheric turbulence, 234
- Thompson, M. C., Jr., with others, measurement of correlation coefficients in reverberant sound fields, 1284
- Thompson, P. O., with others, acoustic attenuation of ear protective devices, 3618
- Thomsen, S. M., and R. H. Bube, high-sensitivity photoconductor layers, 611
- Thomson, J., design of electronic devices for production, 1249
- Thornton, W. A., electroluminescence in ZnS, 2764
- Thorp, J. S., X-ray method for studying current distributions in electron beams, 941
- with A. W. Bright, measurements on hollow cathode, 1260
- Thourel, L., double-curvature reflectors, 1626; aerial with wide-lobe radiation pattern, 2963
- and S. Herscovici, design of radomes, 1965
- Thullier, J. M., thermal conductivity of semiconductors, 799, 3089
- with C. Rigaux, negative magnetoresistance effect in semiconductors, 3413
- with others, thermomagnetolectric effects in InSb, 2120
- Thurston, E. G., ice detector for lighter-than-air craft, 870
- Thwing, E. J., masked threshold and duration of stimulus, 3610
- Tice, T. E., with J. H. Richmond, probes for microwave measurements, 2170
- Tidd, W. H., bandwidth capabilities of beyond-horizon tropospheric propagation, 234
- Tien, P. K., large-signal theory of travelling-wave amplifiers, 2571; minimum noise figure of beam-type microwave amplifiers, 3257
- Tikhonov, A. N., and A. A. Samarski, magnetization of cylinder by coil, 3697
- and D. N. Shakhmurov, e.m. fields in stratified media, 3036; using e.m. field of earth for investigating upper layers, 3839
- Tikhonov, V. I., electrical fluctuations, measurement of, 1484, effect on detector of, 2208, influence on electronic relay of, 3681
- with others, effect of electrical fluctuations on oscillator, 55
- Tilden, E. F., with others, anisotropy and magnetostriction of ferrites, 831
- Tiller, W. A., and J. W. Rutter, effect of growth conditions on solidification of binary alloy, 2146
- with others, mathematical analysis of solute redistribution, 1758; growth twins in Ge, 3101
- Tillman, J. D., and others, ring array as skip-range aerial, 326
- Tillman, J. R., negative-impedance converter, 43
- Timm, U., calculation of e.s. lenses, 3168
- Timofeev, A. A., with others, characteristics of discharge at positive probe, 2686
- Tinkham, M., cyclotron resonance in Bi, 2140
- Tino, Y., with M. Sato, magnetic anisotropy energy of Ni and Ni-Cu alloys, 2453
- Tipnis, C. B., with others, ultrasonic output of quartz radiator, 311
- Tischer, F. J., standing-wave detector with helix-line element, 1493
- Tkachenko, A. D., intelligibility of speech transmitted by communication paths, 313
- Todd, B. J., outgassing of glass, 767
- Tolhurst, G. C., and R. W. Peters, effect of attenuating one channel of dichotic circuit, 3606
- Tolpygo, K. B., and I. G. Zaslavskaya, bipolar diffusion in semiconductors, 1752
- with E. I. Rashba, *V/I* characteristic at *n-p* barrier layer, 2122
- Tolstoi, N. A., and I. A. Litvinenko, measurement of quantity of light in luminescence processes, 1804
- and A. V. Shatilov, relaxation curves of luminescence and photoconductivity, 3076
- and others, photoconductivity and luminescence of CdS(Cu), 3750
- Tolstoy, I., dispersion and simple harmonic point sources in wave ducts, 730
- Tombs, D. M., corona-wind loudspeaker, 659
- Tomiyasu, K., annular waveguide rotary joint, 1954
- Tomizuka, C. T., with M. F. Millea, melting patterns on InSb crystals, 1774
- Tomlin, D. H., with R. A. Hyman, fixation of iodine in Se, 802
- Tomlinson, T. B., with others, electroluminescence in disordered ZnS, 1736
- Tonolo, A., e.m. field inside homogeneous conductor, 3698
- Toraldo di Francia, G., Babinet's principle for directionally conducting screens, 3705
- with L. Ronchi, angular momentum of field in waveguide, 18
- Torikai, Y., and K. Negishi, method for visualization of ultrasonic fields, 2273
- Torizuka, Y., and others, Zeeman effect in NH₃ microwave spectra, 93
- Tortosa, J., with others, thermoelectric effect of CuO, 3111
- Toscano, P. M., and J. B. Hefner, c.r. tube power supply uses transistor oscillator, 3887
- Tousey, R., with others, night airglow (O1) 5577A and sodium D layers, 3369
- Towle, L. T., with D. K. C. MacDonald, integrals in metallic conductivity, 3691
- Townes, C. H., with others, the maser, 403, 3710; microwave application of electron spin resonance, 3032
- Trapeznikov, V. A., with others, electronic analogue apparatus of U.S.S.R. Academy of Sciences, 2636
- Trapeznikova, Z. A., and V. V. Shchaenko, ZnS phosphors activated with rare-earth elements, 2080
- Trautner, G., exact measurement of a.c., 1485
- Travers, D. N., spacing-error analysis of 8-element direction finder, 1423
- Trembasky, R., with R. Lamoral, new acoustic characterization of rooms, 3619
- Trent, G. H., with J. H. Piddington, cosmic radio sources observed at 600 Mc/s, 2707
- von Trentini, G., aeriels with reflectors and conducting disks, 1310; transmission of e.m. waves by pair of gratings, 1376; new microwave aeriels, 1963
- Tretner, W., aperture error in magnetic electron lenses, (C)539
- Treuting, R. G., aspects of slip in Ge, 1099
- Tricoli, F. G., confluent hypergeometric functions, 507
- Triebwasser, S., behaviour of ferroelectric KNbO₃, 2412
- Troitski, V. N., reflection of ultra-short waves in troposphere, 3518
- Troitski, V. S., null method of measuring weak electrical fluctuations, 222; fluctuations in loaded line, 2473
- with others, 91.6-cm radiation of deuterium in galaxy, 408
- Trolan, J. K., and others, electron emission from clean tungsten, 1912
- with others, temperature-and-field emission from tungsten, 392
- Trolese, L. G., characteristics of tropospheric scattered fields, 237
- Truax, C. J., with K. E. Mortenson, screen-room measurements, 3471
- Tschiegg, C. E., with M. Greenspan, speed of sound in water with dissolved air, 2935
- with others, temperature coefficient of speed of sound in water, 2934
- Tsenter, M. Ya., with others, photoconductivity and luminescence of CdS(Cu), 3750
- Tsidil'kovski, I. M., and F. G. Bass, equations of transport in strong electric fields, (D)458
- Tsukkerman, I. I., magnetic field for focusing electron beams, 1511; magnetic electron-optical systems free from image rotation, 1598

- Tsung-Che, Y.**, with others, electron emissions, conduction and noise of oxide-coated cathodes, 629
- Tuchkevich, V. M.**, with others, input resistance and reactance of transistor amplifier, 3474
- Tucker, D. G.**, signal/noise performance of detectors, 251; underwater echo-ranging, 2742
— and J. W. R. Griffiths, detection of pulse signals in noise, 129
— and G. G. Jamieson, discrimination of synchronized oscillator, 2334
- Tucker, G. L.**, with others, spin-echo storage, 1038
- Tucker, M. J.**, and L. Draper, high- Q RC feedback filter, 49
- Tucker, R. W.**, and S. D. Breskend, leakage resistance of capacitors, 2321
- Turkin, V. K.**, and G. A. Levin, detection of f.m. oscillations, 2521
- Turnbull, A. G.**, with others, distortion of E layer by electrical currents, 752
- Turner, D. R.**, anode behaviour of Ge in aqueous solutions, 3785
- Turner, R. D.**, diffraction of pulse by half-plane, 3703
- Turner, W. J.**, photoemission from Ag into NaCl etc., 2757
- Turov, E. A.**, conductivity of ferromagnetic metals at low temperatures, 822
— with others, quantum theory of ferromagnetism, 727
- Turover, Ya. M.**, and N. I. Strutinski, application of Tchebycheff polynomials, 3630
- Tweet, A. G.**, properties of grain boundaries in Au-doped Ge, 469
- Twisleton, J. R. G.**, magnetron Q -measuring apparatus, 2493
- Twiss, R. O.**, magnetron theory, (D)1586
— with R. H. Brown, correlation between photons in coherent beams of light, 1666
- Tye, R. P.**, with others, conductivities of carbon, 2422
- Tyler, W. W.**, and H. H. Woodbury, scattering from doubly charged impurity sites in Ge, 3430
— with H. H. Woodbury, properties of Ge doped with Mn, 1091
— with others, photoconductivity in Mn-doped Ge, 3435
- Ubbelohde, A. R.**, with W. W. Harpur, conduction mechanisms in CsCl, 1103
- Uchida, E.**, CoFe magnetic properties of, 488, ferromagnetism of, 3808
— and H. Kondoh, magnetic properties of NiTe, 2813
— H. Kondoh, and N. Fukuoka, magnetic and electric properties of NiTe, 2812
- Uchikura, K.**, with others, field strength of wave reflected from ionosphere, 900
- Uchirin, G. C.**, transistor power converter, 1555
- Ueda, R.**, with J. Kobayashi, X-ray study of ferroelectric PbTiO₃, 786
- Uemura, Y.**, coupled dislocations along grain boundary, 1762
- Uesugi, Y.**, with others, diffraction effect of mountains for v.h.f. radio-communication 1859
- Ufytand, Ya. S.**, with others, e.m. field of linear radiator inside parabolic reflector, 3650
- Uhlir, A., Jr.**, micromachining with virtual electrodes, 1148; p - n junctions, shot noise in, 2123, for frequency conversion, 3897; electrolytic shaping of Ge and Si, 2432
- Ulbrich, R.**, with others, breakdown field strength in dielectric liquids, 2463
- Ulbricht, G.**, with H. Muth, portable R/T sets, 1550
- Ulrich, W.**, with B. J. Yokelson, multistage diode logic circuits, 2303
- Unger, H. G.**, propagation of waves on dielectric tubes, 21
- Upham, J. L., Jr.**, and A. I. Dranetz, transistor modulator for airborne recording, 3181
- Urban, P.**, with E. Ledinegg, cavity resonators with non-orthogonal boundaries, 685
- Urbarz, H.**, measurement of Q of cavity resonators, 3141
- Uredat, E.**, technology of 120-kW triode Type-RS526, 3588
- Urquhart, H. M. A.**, and J. E. Goldman, magnetostrictive effects in antiferromagnetic haematite, 2816
- Ursch, R. R.**, with L. F. Kilham, Jr, transformer miniaturization using fluorochemical liquids, 1976
- Use, G.**, radio interference in Germany and other countries, 2528
- Usul, R.**, with others, transmission of microwaves over sea, 3861
- Uvarov, A. I.**, with others, input resistance and reactance of transistor amplifier, 3474
- Uyeda, H.**, and Y. Nakata, selective fading on f_{et} traces, 3863
— T. Kitsuizaki and Y. Arima, divergence factor of wave reflected from ionosphere, 1849
— and others, field strength of wave reflected from ionosphere, 900
- Uzan, R.**, with G. Mesnard, thermionic emission from sintered mixtures, 945; effect of Zr on sintered oxide cathodes, 946; sintered capillary cathodes, 3585
- Uzunov, I.**, with others, self-sustained electronic spokes in magnetrons, 1587
- Vail, F. T.**, with others, ferrite modulator using feedback, 3015
- Vainshtein, L. A.**, diaphragms in waveguides, 1301; diffraction at parallel-strip gratings, 1380
- Valdes, L. B.**, frequency response of transistors with drift fields, 1577
- de Valencé, L. P.**, instability of photomultipliers, 610
- Valensi, G.**, polarization filters and correctors, 1299
- Valentiner, S.**, in alloys, 188
- Valeriani, M.**, with M. Soldi, transistor circuit for resonance-coefficient multiplier, 1013
- Vallée, R.**, integration of Maxwell's equations, 2697
- Valloton, J.**, with J. Bauer, coaxial-cable carrier-current systems, 908
- Vanasse, G. A.**, with H. A. Gebbie, interferometric spectroscopy in far infrared, 3687
- Vanavermaete, A.**, measurement of low alternating voltages, 1487
— with others, plasmograph for studying electric discharges, 532
- Vandakurov, Yu. V.**, electron-optical equations for wide beams, 2509
- Van Den Beukel, A.**, acousto-electric effect, 2678
- Vanhuysse, V. J.**, resonance frequencies in corrugated waveguide, 1302
- Van Kampen, N. G.**, stationary waves in plasmas, 2029
- Van Krampendonk, J.**, spin-deviation theory of ferromagnetism, 1368, 2025
- Van Nice, R. I.**, with R. W. Roberts, i.d./o.d. ratio of toroidal cores, 996
- VanOrmer, D. D.**, with others, improvements in colour kinescopes, 1567
- Van Uitert, L. G.**, low-magnetization-saturation ferrites, 1136; Ni-Cu ferrites for microwave applications, 3809
— with S. S. Flaschen, low-contact-resistance electrode, 2124
— with others, ferromagnetic resonance in Mg-Mn-Al ferrite, 491
- Varbanski, A. M.**, sequential system of image transmission in colours, 582; Moscow colour-television experiments, 1560
- Varičák, M.**, and B. Vošicki, measurement of Penning-gauge characteristics, 440
- Vartanian, P. H.**, and J. L. Melchor, broadband microwave frequency meter, 1496
— with others, energy concentration in ferrite-loaded waveguides, 1615; frequency doubling in ferrites, 2138
- Vasenin, F. I.**, thermoelectric properties, of Bi-Te alloys, 166; of Sb-Te alloys, 2126
- Vasil'ev, G. A.**, with others, electromechanical stabilizer for klystron frequency, 58
- Vasil'eva, N. P.**, design of push-pull magnetic power amplifiers, 2672
- Vasseur, J. P.**, principles of transistor circuits, 1984; circuits using junction transistors, 2675
- de Vaucouleurs, G.**, with F. J. Kerr, Magellanic clouds, motions of, 1702, masses of, 2709
- Vaughan, J. R. M.**, klystron modulation and Schlämilch series, 1592; mm- λ magnetron, 2580
- Vaughan, T. B.**, with others, injection phenomena in proton synchrotron, 2860
- Vaugols, B.**, influence of age on cm- λ radiation from solar centres, 411
- Vauthier, R.**, optics of electric charges and mass spectrometry, 1846
- Vautier, R.**, magnetostriction and permeability of Mn-Zn ferrites, 3458
— with others, reduction of eddy-current losses in ferrites, 3457
- Vecchiacchi, F.**, propagation tests at 1000 Mc/s, 3522
- van der Veen, B.**, equivalent network of crystal with divided electrodes, 2653
- Veigel, N. D.**, E. M. Sherwood and I. E. Campbell, preparation of high-purity thorium, 2144
- Veith, W.**, energy distribution of electrons in beam with space charge, 940
- Veksler, A. Z.**, photoelectron emission in ferromagnetic material, 1059
— with others, photoelectric effect in metals, 373
- Veldstra, J. M. M.**, v.h.f. ph.m. transmitter/receiver for 4-channel telephony, 1209
- Velikin, Ya. I.**, Z. Ya. Gel'mont and E. V. Zelyakh, piezoelectric high-pass filter, 48
- Venkovski, D. N.**, with V. S. Mikhailovskii, generation of oscillations by travelling-wave valve, 1591
- Venevtsev, Yu. N.**, and G. S. Zhdanov, X-ray structural investigation of ferroelectrics, 2770
- Venkitaraman, K.**, ground-wave propagation, 891
- Venkiteshwaran, S. P.**, with others, radar observations of rain at Poona, 127
- Venzke, G.**, form of reverberation chambers, 2946
- Verbitskaya, T. N.**, nonlinear properties of ferroelectrics, 2770
- Vershchagin, E. M.**, quadrature amplitude-phase modulation, 257
- Vershchagin, L. F.**, and A. I. Likhter, dependence of Hall effect in Bi on pressure, 500
- Verma, J. K. D.**, and R. Roy, polarization of echoes from ionosphere, 2384
— with R. Roy, polarization of e.m. waves in ionosphere, 1526
- Vernier, P.**, limitation of magnitudes attained by electron telescope, 2188
- Vernotte, P.**, experimental laws, smoothing of, 2345, successive derivation of, 2676
- Veronesi, P.**, with L. Ferretti, influence of magnetic field on h.f. gas discharge, 716
— with others, fast sweep circuit, 698
- Veselago, V. G.**, with others, increasing Q factor of cavity resonator, 348
- Veselovski, P. F.**, measurements on solid dielectrics at cm λ , 1155
— and A. I. Slutsker, relaxation processes in polyvinyl acetate, 1477
- Vestine, E. H.**, with S. E. Forbush, sudden commencements of magnetic storms at Huancayo, 415
- Vi-Cheng Lui.** See Lui, Vi-Cheng.
- Vick, F. A.**, Hall effect and related phenomena, 95; new thermionic cathodes, 2582
- Vickers, D. O.**, with R. Cade, e.s. centre of conductor, 2350
- Vigurs, R. F.**, with others, suppressed-frame system of telerecording, 918
- Villard, O. G., Jr.**, and others, meteor ionization trails, in extended-range v.h.f. propagation, 236, oblique reflections from, 3509
— with others, aspect-sensitive radio reflections from ionosphere, 1527
- Villars, F.**, and V. F. Weisskopf, scattering of radio waves by turbulent fluctuations, 244
- Ville, J. A.**, extrapolation of signals with limited spectrum, 2216
— and J. Bouzitat, signal limited in time and frequency, 1206
- Villepelet, J.**, signal interference in radiocommunication systems, 2222
- Villers, G.**, with C. Guillaud, effect of substituting Al³⁺ ions for Fe³⁺ ions on magnetic properties of compounds, 3451
— with others, influence of alkali ions on Mn-Zn ferrites, 3121

- Vincent, C. H., the gas multiplier, 1922; phase-angle measurement, 2484
- Vink, H. J., with others, zone melting of decomposing solids, 145
- Vinokurov, L. A., with V. V. Antonov-Romanovski, reduction of luminous output of phosphors, 3079
- Virbal, P. A., with F. J. Euler, cineröntgenography, 3174
- Viswanathan, A., thickness and structure of Cu-Be films, 2458
- Vlasov, K. B., with others, quantum theory of ferromagnetism, 727
- Vlasova, R. M., and L. S. Stil'bens, thermoelectric properties of Bi_2Te_3 , 1083
- van Vliet, K. M., and J. Blok, noise in semiconductors, 3796
- Vogan, E. L., with others, variations in number of shower meteors detected by forward scattering, 1046; dependence of meteoric forward-scattering on aerial patterns, 1198
- Vogel, H., with K. W. Böer, nonstationary processes in photoconductors, build-up in CdS, 1061
- Vogel, T., acoustic properties of materials, 3622
- Vogelsong, J. H., with Q. W. Simkins, transistor amplifiers for digital computers, 1014
- Vogler, L. E., with others, probability distribution of constant vector plus Rayleigh-distributed vector, 197, 234; propagation through turbulent atmosphere over irregular terrain, 242
- Vogt, E., with C. Herring, theory for many-valley semiconductors with anisotropic scattering, 2423
- Vogt, K., with M. Corsepius, observations with TOM equipment at Frankfurt, 2533
- with B. Beckmann, observations of s.w. back-scatter, 896
- with W. Kronjäger, fluctuations of direction of arrival of short waves, 1201
- Vol'f, V. M., nonlinear distortions of complex oscillations, 2012
- Volger, J., and J. M. Stevels, polarizability of colour centres in quartz and glasses, 2768
- J. M. Stevels and C. van Amerongen, dielectric losses of quartz, 451
- Volin, M. L., trailing edge of pulse in cathode follower, 3683
- Volland, H., solar-eclipse effects on earth's magnetic field, 3722
- Von Foerster, H. M., with M. Weinstein, space-charge effects in velocity-modulated beams, 2909
- Vonsovski, S. V., multi-electron theory of semiconductors, 3415
- A. V. Sokolov and A. Z. Veksler, photoelectric effect in metals, 373
- K. B. Vlasov and E. A. Turov, quantum theory of ferromagnetism, 727
- Voorhies, H. G., with others, 300-MeV electron synchrotron, 874
- Vošicki, B., with M. Varičák, measurement of Penning-gauge characteristics, 440
- Vousden, P., structure of BaTiO_3 and TiO_2 , 2773
- Vowels, R. E., solution of cascaded four-terminal networks, 1642
- von Vultée, J., intergrowth of rutile in quartz, 2460
- Waché, X., with G. Guiot-Guillain, analysis of Sm ferrite, 184
- Wada, M., with others, magnetic storms, solar phenomena and cosmic-ray storms, 1708
- Waddell, J. M., S. E. Mayer and S. Kaye, Ge diffused-junction photocell, 615
- Wade, F., with W. Abson, nuclear-reactor-control ionization chambers, 3838
- Wade, G., and N. Rynn, coupled helices in travelling-wave valves, 1253
- with E. W. DeGrasse, electron-beam noisiness for field-emission cathode, 3582
- van Wageningen, J. H., communications receiver Type-BX925A, 3527
- Wagoner, G., with others, cyclotron resonance in Ge-Si alloys, 1456
- Wahl, A. J., and J. J. Kleinmack, reliability of alloy-junction transistors, 2243
- Wainfan, N., with others, photoelectric yields in the vacuum ultraviolet, 1058
- Wait, J. R., scattering from lossy strip on conducting plane, 90; radiation characteristics of slots on cylinder, 331; radiation resistance of dipoles at interface, 1958; transient fields of dipole over curved ground, 1959; radiation pattern of aerial on surface of large radius of curvature, 2296; radiation from dipole in presence of cylinder, 2960; radiation from vertical aerial over curved ground, 3190; waveform of atmospheric, 3385
- and H. H. Howe, ground-wave propagation at 200 c/s–500 kc/s, 3516
- and K. Okashimo, patterns of stub aerials, 2624
- and R. E. Walpole, radiation characteristics of slots, 2962
- with D. G. Froot, slot radiators in rectangular plates, 1309
- Walbank, W. M., with others, Si-junction power diodes, 3889
- Walcher, W., with R. Hofmann, calculation of time functions for broken rational transform functions, 1151
- Waldron, R. A., ferrites in resonant cavities, 2658
- Waldron, R. D., infrared spectra of ferrites, 833
- Walker, J., with R. J. Cox, control of nuclear reactors, 3838
- Walker, L. R., power flow in electron beams, 300
- with J. R. Pierce, growing waves due to transverse velocities, 1906
- with others, line width in ferromagnetic resonance, 2033
- Walker, R. M., with others, spin-echo storage, 1038
- Walker, W. C., N. Wainfan and G. L. Weissler, photoelectric yields in the vacuum ultraviolet, 1058
- Wall, R. E., Jr, and A. E. Harrison, broad-band microwave frequency spectrum, 1806
- Wallauschek, E., unipolar conduction at semiconductor/metal boundary, 791
- Wallenfang, K., with others, quality of ferrites for computers, 1629
- Walls, G., measurements on caesium-antimony layers, 3749
- Wallman, R., automatic noise-factor meter, 1498
- Walpole, R. E., with J. R. Wait, radiation characteristics of slots, 2962
- Walsh, D., electron affinity of hydrogen, 1357
- A. W. Bright and T. J. Bridges, electrode deterioration in t.r. switches, 2252
- with others, keep-alive instabilities in t.r. switch, 2251
- Walsh, J. L., and M. Zedek, generalized Tchebycheff polynomials, 2830
- Walsh, J. R., with others, atmospheric temperatures and winds, 2376
- Walshaw, C. D., and K. M. Goody, investigation of ozone band in solar spectrum, 3725
- Walter, C. H., with B. T. Stephenson, end-fire slot aerials, 1306
- Walton, S., with J. Lees, influence of pressure on metal/Ge contacts, 1095; surface states on Ge, 1767
- Waltz, W. R., with R. S. Shultz, functional divisions for electronic equipment, 1267
- Wang, T. C., with K. Shimoda, hyperfine structure of NH_3 , 1693
- with others, theory of maser, 3710
- Wanlek, R. W., with H. P. Furth, production of high transient magnetic fields, 3030
- Wanmaker, W. L., with J. L. Ouweltjes, nonstoichiometry in oxygen-dominated phosphors, 3397
- Wannlund, A. L., with others, recent developments in Si fusion transistors, 926
- Warbanski, A. M. See Varbanski, A. M.
- Warburton, J. A., with W. N. Christiansen, distribution of radio brightness over sun, 1706
- Ward, H. T., W. O. Puro and D. M. Bowie, artificial dielectrics with voids, 1437
- Ward, R., with S. Terol, perovskite-type ternary oxides as luminophors, 1065
- Ward, W. H., time signals for determination of longitude, 3515
- Wareham, E. M., slotted-section standing-wave meter, 859
- Warnecke, R., and others, carnatron wide-band oscillator, 620
- Warnecke, R. J., with D. Charles, hydrogen thyratron, 2926
- Warner, A. W., with others, dislocations etc. of crystal quartz, 2826
- Warner, A. W., Jr, with others, experimental evidence for dislocations in quartz, 842
- Warren, R. W., measurement of fields in glow discharges, 390
- Warzecha, T. D., telemetry demodulator for wide-band f.m., 3178
- Wasilik, J. H., with R. K. Cook, anelasticity and dielectric loss of quartz, 3811
- Wass, C. A. A., An Introduction to Electronic Analogue Computers, (B)2976
- Watanabe, H., magnetism of (La, Sr) FeO_x ferrites, 2822
- Watanabe, K., F. F. Marmo and J. Pressman, formation of lower ionosphere, 1407
- Watanabe, S., and N. L. Oleson, travelling density waves in positive columns, 714
- with others, effects of Bi_2O_3 on ferrites, 832
- Waterhouse, R. V., and R. K. Cook, recording sound transmission loss of walls, 655
- with others, measurement of correlation coefficients in reverberant sound fields, 1284
- Waters, G. S., measurement of earth's magnetic field by nuclear induction, 414
- Waters, W. P., with others, recent developments in Si fusion transistors, 926
- Watkins, A., automatic control of power equipment for telecommunications, 2543
- Watson, K. M., and K. A. Brueckner, study of ionized gases, 2692
- Watt, W., with others, conductivities of carbon, 2422
- Watters, R. L., and G. W. Ludwig, minority-carrier lifetime in Si, 3094
- with G. W. Ludwig, drift mobility in Si, 2790
- Wayman, P. A., daily maps of sun, 2041
- Waymouth, J. F., and F. Bitter, field-induced colour shift in ZnS, 3398
- Waynick, A. H., lowest ionosphere, 755
- Weaver, J. T., with B. W. Currie, vertical extent of auroral arcs and bands, 1420
- Webb, A. L. C., and A. Ellett, phonevision subscription television, 1223, 2547
- Webb, J. H., pulses applied to silver halide crystals, 1057
- Weber, W., C. W. Johnstone and L. Cranberg, measurement of μms time intervals, 2835
- Webley, R. S., H. G. Lubszynski and J. A. Lodge, half-tone charge-storage tubes, 2590
- Webster, J. C., and L. Sharpe, improvements in message reception, 1287
- and L. N. Solomon, response complexity in listening to competing messages, 1288
- P. O. Thompson and H. R. Beitscher, acoustic attenuation of ear protective devices, 3618
- with W. Spieth, listening to filtered voice messages, 650
- Wedepohl, P. T., with H. B. Dyer, electrical measurements on type-11b diamonds, 2785
- Weekes, K., with S. Gnanalingam, D-region echoes at 1.4 Mc/s, 755
- with others, motion of cylindrical irregularity in ionized medium, 755
- with others, radio observations on 23rd February 1956, 2717
- van Weel, A., phase-linear television receivers, 594, 2235; r.f. characteristics of television receivers, 2892; error sources in group-delay measurements, 3477
- with C. J. Heuvelman, group-delay measurements, 2482
- Weibel, E. S., Webster's horn equation, 2; vowel synthesis by resonant circuits, 651
- Weides, E., with others, quality of ferrites for computers, 1629
- Weill, G., e.m. field at junction of three media, 88; diffraction of surface waves and theory of dielectric aerial, 2616
- Weill, J., with M. Brière, vibrating-capacitor electrometer, 855
- Weinstein, M., and H. M. Von Foerster, space-charge effects in velocity-modulated beams, 2909
- Wels, A., h.f. impedance of chokes, resistors and capacitors, 33

- Weisbaum, S.**, and H. Boyet, double-slab ferrite isolator, 1994; broadband nonreciprocal phase shifts in rectangular guide, 2959
 — and H. Seidel, field-displacement isolator, 3675
- Weise, A. A.**, diffusion coefficients of meteor trails, 100
- Weisslitzer, J.**, with P. Rohan, compensation of wide-band amplifiers, 1010
- Weiss, H.**, with O. G. Folberth, preparation and properties of InP and GaAs, 3107
- Weiss, R. J.**, and K. J. Tauer, thermodynamic functions of iron, 3807
- Weissfloch, A.**, Schaltungstheorie und Messtechnik des Dezimeter- und Zentimeterwellengebietes, (B)1015
- Weissshaar, E.**, magnetic blocking layers in Ge, 2114
- Weisskopf, V. F.**, with F. Villars, scattering of radio waves by turbulent fluctuations, 244
- Weissler, G. L.**, with A. W. Ehler, ultraviolet absorption of atomic nitrogen, 2013
 — with others, photoelectric yields in the vacuum ultraviolet, 1058
- Welch, A. B.**, with S. W. Levine, electronic engraving, 2190
- Welch, P.**, with others, yields of improved quality for government and industrial purposes, (D)617
- Welker, H.**, optical and electrical properties of GaAs, InP and GaP, 145
 — with others, magnetic blocking layer in semiconductors, 2100
- Welkowitz, W.**, directional circular arrays, 2937
- Wells, P. I.**, with H. B. Janes, tropospheric scatter-propagation measurements, 234
- Wendt, G.**, resolving power of image converter, 1918; first-stage focusing of photomultiplier tube, 3248
- Wentworth, J. W.**, Color Television Engineering, (B)3557
- Wentzel, V.**, electronic function generator, 1967
- Werner, P. H.**, sapphire and diamond needles, 1610
- Wert, C.**, with J. Kerr, effect of nitrides on coercive force of iron, 482
- Wesley, A. C.**, X-ray production by magnetron, 943
- West, J. C.**, J. L. Douce and R. K. Livesley, analysis of nonlinear feedback systems, 3223
- West, R.**, with K. W. Plessner, BaTiO₃ with Si and Ge, 1737
- Westfold, K. C.**, with S. Chapman, solar and lunar atmospheric tides, 2068
- Westpfahl, K.**, diffraction of e.m. waves by plane screens, 399
- Westphal, W. C.**, with J. R. Haynes, recombination radiation from Si, 2789
- Westwood, D. J. S.**, with S. E. Gent, vision a.g.c. system, 281
- Wetherell, A. M.**, with G. Fidicaro, design of distributed amplifiers, 2670
- Whale, H. A.**, effective tilt of ionosphere, 2723; antipodal area in s.w. propagation, 3859
 — and W. J. Ross, automatic direction finder for recording rapid fluctuations, 2744
- Whalley, W. B.**, and R. S. O'Brien, colour video switching, 2554
- Wheatley, G. H.**, with others, Hall effect and conductivity of InSb, 1772
- Wheelon, A. D.**, near-field corrections to line-of-sight propagation, 234; scatter propagation with modified exponential correlation, 234
 — and R. B. Muchmore, line-of-sight propagation phenomena, scattered components, 234
 — with R. B. Muchmore, line-of-sight propagation phenomena, ray treatment, 234
- Whinnery, J. R.**, with M. R. Currie, cascade backward-wave amplifier, 624
- Whitcraft, W. A., Jr.**, with others, ionospheric scatter techniques, 3185
- White, C. E.**, how loud is silence? 2604
- White, E. A. D.**, twinning in BaTiO₃ crystals, 2085
 — with B. Lewis, Na-Cd niobates, 3401, solid-solution effects and ferroelectricity in, 2087
- White, J. R.**, with R. P. Burr, computer gives tristimulus values, 70
- White, M. L.**, with H. K. Sen, excitation of gravitational oscillations, 1404
- White, R. E.**, travelling-wave valves, 2257
- White, R. W.**, and J. S. Whyte, measurement of interchannel crosstalk, 2167
 — with P. A. Ravenscroft, frequency modulator for radio relay systems, 286
 — with others, v.h.f. propagation by ionospheric scattering, 1860
- White, W. D.**, and J. G. Greene, noise temperature of gas-discharge noise generators, 3146
- Whitfield, G. R.**, with B. Elsmore, lunar occultation of radio star, 97
- Whitmer, R. F.**, nonrotationally symmetrical e.s. lenses, 3848
- Whitworth, J. R.**, u.h.f. satellite operation, 2553
- Whyte, J. S.**, measurement of v.h.f. network characteristics, 217
 — with K. W. White, measurement of interchannel crosstalk, 2167
- Widra, H.**, with H. Fleischer, frequency-band recorder, 2175
- Wieder, B.**, propagation over 1150-km E-W path, 1523
- Wieder, H. H.**, BaTiO₃, at low temperature, 454, ferroelectric hysteresis in single crystals of, 1438, retarded polarization in, 2766
- Wiesner, J. B.**, with others, u.h.f. long-range communication systems, 263
- Wiesner, R.**, and E. Groschwitz, temperature dependence of photocurrent in Ge *p-n* junctions, 1097
- van Wijk, A. M.**, magnetic effects during solar eclipses, 416
- Wild, J. P.**, and J. A. Roberts, spectrum of radio-star scintillations and irregularities in ionosphere, 2058
- Wilde, H.**, measurements of reversible permeability, 1469
- Wildermuth, K.**, self-acceleration of electrons, 2014
- Wilkes, A.**, W. Hopwood and N. J. Peacock, mechanism of breakdown in hydrogen, 387
- Wilkins, A. F.**, and C. M. Minnis, arrival angle of h.f. waves, 1200
- Wilkins, F. J.**, and S. Harkness, electronic supply for calibration of instruments, 1554
- Wilkinson, J. H.**, optimum coding on pilot ACE, 670; electronic computing machines, 986
- Williams, A. J.**, with others, anisotropy and magnetostriction of ferrites, 831
- Williams, B. E.**, with others, study of gold films, 836
- Williams, F. E.**, with J. S. Prener, associated donor-acceptor luminescent centres, 2405
 — with others, effect of electron traps on electroluminescence, 3755
- Williams, F. K.**, with others, circuits used in digital automation, 2638
- Williams, H. J.**, R. D. Heidenreich and E. A. Nesbitt, Co ferrite heat-treated in magnetic field, 1788
 — with E. A. Nesbitt, shape and crystal anisotropy of alnico 5, 825
- Williams, M. B.**, and J. B. Sewter, circuits for television outside broadcasts, 2545
- Williams, R. W.**, with G. M. Parker, magstrip isograph, 334
- Williams, W. E.**, diffraction by a cylinder, 3269
- Williamson, M. E.**, and S. E. Rodby, low-power telecasting, 1568
- Willis, C. H.**, with others, optimum core shape for magnetic amplifiers, 340
- Willis, J.**, and N. K. Sinha, nonuniform lines as impedance-matching sections, 664, 1614; impedance transformers, 3277
- Willoughby, E. O.**, wide-band and folded aerials, 2622, 3640
- Willis, G. M. B.**, with A. D. Hodgson, microwave system in Canada, 2890
- Willson, A. J.**, with J. W. Dungey, viscosity in F region, 1410
- Wilmot, P. D.**, chlorinated diphenyl capacitors, 1320
- Wilshire, H. K.**, characteristics of pentagrid converter valve, 3590
- Wilson, W. P.**, rejector circuit, (D)2664
- Winkler, G.**, propagation of plane waves in plasma, 731
- Winkler, U.**, intermetallic compounds with Mg, 1753
- Witt, B. J.**, with others, coherent M.T.I. radar on 50 cm, 3387
- Witt, S. N., Jr.**, transistorizing Meacham-bridge oscillators, 1654
- Wohl, R. J.**, with others, cathode-ray recorder, 2263
- Wöhle, W.**, sound level in corners of rooms, 3620
- Wohlfarth, E. P.**, ferromagnetic particles, remanence curve of, 496, effect on coercive force of, 827; remanent magnetization of haematite, 1129
- Wojaczek, K.**, with K. Rademacher, cathode fall in glow discharge, 2358
- Wolf, J.**, colour-television system with two subcarriers, 3542
 — with W. Dillenburger, equipment for single photographs of television pictures, 586
- Wolfe, B.**, specific noise of PbS photodetectors, 2249
- Wolfe, R.**, with I. G. Austin, properties of semiconducting diamond, 2784
- Wolff, G. A.**, R. A. Herbert and J. D. Broder, electroluminescence of GaP, 1433
- Wollan, E. O.**, and W. C. Koehler, magnetic properties of compounds [(1-x)La, xCa]MnO, 1114
- Wollenberger, J. H.**, with A. Kussmann, powder patterns in high-coercivity alnico, 3805
- Wollentz, R. W.**, Pb- and Mn-activated cadmium fluorophosphate phosphors, 2408
- Wong, J. Y.**, radiation patterns of slotted elliptical-cylinder aerials, 2629; theory of coaxial line with elliptic conductors, 3631
- Wong, S. Y.**, high-density Williams storage, 3288
- Wood, C. B. B.**, and others, suppressed-frame system of telerecording, 918
- Wood, J.**, c.r.o. beam-brightening device, 860, (D)3491
- Wood, J. K.**, relay-operated accumulator, 2639
- Wood, K. E.**, and L. V. Hansford, flutter computer with low-gain amplifiers, 335
 — and T. C. Keenan, multi-trace c.r. tube display, 1823
- Woodbury, H. H.**, and W. W. Tyler, properties of Ge doped with Mn, 1091
 — with W. W. Tyler, scattering from doubly charged impurity sites in Ge, 3430
 — with others, photoconductivity in Mn-doped Ge, 3435
- Woodford, J. B.**, with others, tapered strip line for pulse transformer, 993
- Woodman, H. F.**, and P. H. J. Taylor, facsimile communication, 2190
- Woods, J.**, and D. A. Wright, field-enhanced luminescence in MgO, 138
- Woods-Hill, W.**, television signal recording, 1561; e.s. pulse generator, 1632; multiple pulse-stream generator, 2972
- Woodward, O. M., Jr.**, and J. Gibson, omniguide television aerial, 2297
- Wooster, W. A.**, with S. C. Prasad, elastic constants, of Si, 152, of Ge, 475
- Wooten, L. A.**, G. E. Moore and W. G. Guldner, excess Ba in oxide cathodes, 301
 — with others, excess Ba content of oxide cathodes, 302
- Wootton, D. J.**, and A. F. Pearce, klystron oscillator for 8.9 mm λ , 2579
- Wörner, H.**, stability of Se photocells, 613
- Woschni, E. G.**, gain characteristic inside pull-in range, 3560
- Wray, D.**, with J. B. Sewter, balanced equalizer-amplifier for transmitting video signals, 275
- Wright, D. A.**, and J. Woods, field-enhanced luminescence in MgO, 138
- Wright, F. H.**, and S. A. Zimmermann, radio influence voltages in fluorescent lighting systems, 3209
- Wright, G. T.**, with T. D. S. Hamiltou, transit-time spread in electron multipliers, 2247
- Wright, H.**, television studio practices relative to kinescope recording, 2549
- Wright, K. H. R.**, with L. Grumberg, structure of abraded metal surfaces, 1028
- Wright, R. W.**, J. R. Koster and N. J. Skinner, spread F-layer echoes and radio-star scintillations, 2731
 — with N. J. Skinner, recombination and ion production, 113; equatorial ionospheric absorption, 3855
- Wright, W. L.**, microwave television transmission systems, 578
- Wright, W. V.**, with others, recent developments in Si fusion transistors, 926

- Wright, W. W., with others, valves of improved quality for government and industrial purposes, (D)617
 — with B. D. Mills, rating valves for use under abnormal conditions, 937
 Wucher, J., with others, induced ferromagnetism by addition of Li ions to NiO, 2454
 Wulf, O. R., with S. B. Nicholson, diurnal variation of geomagnetic fluctuations, 1403
 Wulfsberg, C. N., Zener-voltage breakdown in Si diodes, 923
 Wylen, J., with others, magnetic-core circuits for digital systems, 1313
 Wyluda, B. J., with R. G. Shulman, Cu in Ge: recombination and trapping centres, 3781
 Wyman, J. H., with others, 3-mm- λ radiation from the sun, 740
- Yadav, R., peak-limiting amplifiers, 699
 Yadavalli, S. V., geometrical optics and electron-trajectory calculations, 394
 Yager, W. A., J. K. Galt and F. R. Merritt, ferromagnetic resonance in Ni-Fe ferrites, 492
 — with others, frequency dependence of magnetocrystalline anisotropy, 835; quantum effects in cyclotron resonance, 1093
 Yamada, O., irreversible magnetic after-effect, 1123
 — with A. Kussmann, coercive force and after-effect of permanent magnets, 2823
 Yamaka, E., and K. Sawamoto, photo-induced Hall effect in MgO, 2115
 Yamamoto, K., and T. Okuda, floating-probe method for measurement of ionized gas, 2687
 Yamamoto, M., formula for ferromagnetic anisotropy constant, 481
 — S. Taniguchi and K. Aoyagi, domain structure in cubic solid solutions, 3802
 Yamamoto, T., K. Tani and K. Okada, energy dissipation of conduction electrons, 3020
 Yamashita, J., theory of electron multiplication in Si, 3093
 Yanoshi, L. See Jánossy, L.
 Yaroslavski, M. I., piezoelectric resonators with crystals having defects, 2770
 Yasuhara, H., with others, geomagnetic variations during solar eclipse, 2045
 Yasuoka, Y., space charge affected by magnetic field, 2575
 Yates, J. G., with others, electron-trajectory tracer, 3833
 Yatsenko, A. F., with others, fusion of BaTiO₃ by conduction, 2770
 Yavor, S. Ya., focusing properties of cylindrical magnetic lenses, 1510
 — with V. M. Kelmán, cylindrical magnetic lenses, 2508
 Yerg, D. G., observation of ionospheric drift, 2728
 Yin-Yuan Li. See Li, Yin-Yuan.
 Yokelson, B. J., and W. Ulrich, multistage diode logic circuits, 2303
 Yokota, M., paramagnetic relaxation, 1031
 Yokoyama, A., with T. Hashimoto, decrease of grid emission by improvement of electroplating, 632
 Yokoyama, I., with others, effect of solar eclipse on ionosphere, 1716
 Yonezawa, T., F. Layer, mechanism of electron removal in, 114, influence of diffusion on, 751, 1712, formation of, 3049
 Yoshida, N., with others, studies on diffracted waves from mountain, 898
 Yoshida, S., and others, dissociation of BaO under electron bombardment, 3260
 Yoshimatsu, S., and others, influence of infrared rays on photoconductivity of CdS, 130
 — with S. Ibuki, photoconductivity of stibnite, 479
 Yoshinaga, H., reflectivity of crystals in the far infrared, 1077
 — and R. A. Oetjen, optical properties of InSb, 2118
 Young, D. R., with others, polarization reversal in BaTiO₃, 3759
 Young, J. E., propagation of sound in elastic shells, 1274; heat conduction losses in acoustic boundary layer, 1279
 Young, J. R., measuring screen potential of c.r. tubes, 204; deterioration of phosphors under positive-ion bombardment, 1070; penetration of electrons and ions in Al, 1676
 Young, R. E., with F. Exley, grounded-grid valve system, 2589
 Yu, S. P., and A. H. Morrish, torsion balance for microscopic magnetic particle, 2155
 — with A. H. Morrish, coercive force of iron-oxide powders, 170; measurements on ferrite particles near single-domain size, 3455
 Yu, Y. P., measuring phase at r.f., 1166
 Yuhara, H., T. Ishida, and M. Higashimura, amplitude probability distribution of atmospheric noise, 3135
 Yunovich, A. E., with S. G. Kalashnikov, variation of conductivity of Ge by external field, 1448
 Yurin, V. A., with I. S. Zheludev, properties of ferroelectric-salt crystals exposed to irradiation, 2770
 — with others, polarization of Rochelle salt exposed to radioactive irradiation, 143
 Yurkov, B. Ya., application of matrix method to radio engineering, 2994
 Yuzhakov, V. M., specific charge of electrons, 2015
- Zaffarano, D. J., with W. A. Rhinehart, pulse-height measurement, 2844
 Zagajewski, T., linear and nonlinear effects in reactance and oscillator circuits, 53
 Zaitsev, G. A., description of e.m. field by matrices, 85
 Zakovsky, J., with J. Braumbeck, dependence of barrier-layer photo-effect on X radiation, 1245
 Zancanata, H. W., with M. S. Redden, Jr, telemetering receiver conserves bandwidth, 2526
 Zanella, V. J., ground-to-air aerial uses helical array, 1621
 Zaslavskaya, I. G., with K. B. Tolpygo, bipolar diffusion in semiconductors, 1752
 Zavoiski, E. K., and S. D. Fanchenko, electron-optical chronography, 3502
 Zawels, J., equivalent circuit of junction transistor, 607
 Zedek, M., with J. L. Walsh, generalized Tchebycheff polynomials, 2830
 Zega, B., with others, influence of alkali ions on Mn-Zn ferrites, 3121
 Zeiger, H. J., with others, the maser, 403
 Zelyakh, E. V., with others, piezoelectric high-pass filter, 48
 Zemanian, A. H., step response of positive real function systems, 3670
 Zetzmann, H. J., Siemens contributions to air-navigation electronics from 1930 to 1945, 1054
 Zhabotinski, M. E., and Yu. L. Sverdlov, operation of amplitude limiter, 3676
 — with others, electromechanical stabilizer for klystron frequency, 58; increasing Q factor of cavity resonator, 348
 Zhdanov, G. S., with Yu. N. Venetsev, X-ray structural investigation of ferroelectrics, 2770
 Zheludev, I. S., and V. A. Yurin, properties of ferroelectric-salt crystals exposed to irradiation, 2770
 — and others, polarization of Rochelle salt exposed to radioactive irradiation, 143
 Zhevakin, S. A., and V. M. Fain, nonlinear effects in ionosphere, 3856
 Zhukova, N. V., accumulation property of ZnS phosphors, 775; electron levels in ZnS-Cu phosphors, 2758
 Zhuravlev, V. A., with A. I. Andrievski, photoconductivity of SnO₂, 3396
 Zhuze, V. P., heat of formation and electron mobility of semiconductor, 3418
 Zickner, G., adjustable absolute capacitance standard, 1500; variable capacitors with zero initial capacitance, 3499
 Ziegler, C. A., and H. H. Seliger, hysteresis effect in multiplier phototube noise, 929
 Ziehm, G., difficulties in direction finding on ships, 432; ferrite aerials in direction finders, 1622
 van der Ziel, A., shot noise in junction diodes and transistors, 600
 — with others, flicker noise in secondary emission tubes and multiplier phototubes, 3587
 Zijlstra, R. J. J., and C. T. J. Alkemade, flicker noise in photoelectric diodes, 3569
 Zilberman, G. E., thermo- and galvano-magnetic effects, 3038
 Zim, J. M., electron-phonon interaction, 1355; effect of free electrons on lattice conduction, 2017
 Zimmermann, S. A., with F. H. Wright, radio influence voltages in fluorescent lighting systems, 3209
 Zinke, O., with others, resistance of sheets, strips etc. at 10 c/s-100 km/s, 1634
 Zitter, R. N., with S. W. Kurnick, photoeffects in InSb, 2429
 Zmuda, A. J., adjustment of isomagnetic charts, 2372
 Zomber, G. L., and D. Macmillan, fuel cut-off control for guided missiles, 1186
 van Zoonen, D., double pulses in Geiger counters, 2865
 Zschörner, H., with H. K. Paetzold, observation of 'ozone hole', 417
 Zucker, J., with H. K. Henisch, estimation of resistivity and lifetime of semiconductors, 3824
 Zückler, K., operation of SiC resistors, 2314
 Zverev, V. A., V. M. Bokov and I. E. Lur'e, capacitance analyser of sound field, 964
 — with A. G. Gorelik, interaction of sound waves, 1939
 Zwicker, E., and R. Feldtkeller, loudness of steady noises, 1604
 Zwislocki, J., design and testing of earmuffs, 1297
 Zyryanov, P. S., theory of conductivity in metals, 1020; relaxation fluctuations in condensed systems, 2090

SUBJECT INDEX

- Absorption**, (See also Wave propagation)
acoustic, of carpet, measurement of, **1294**
of materials, determination of, reflection method for, **3622**,
reverberation-chamber method for, **966**
of theatre seats and carpet, **1945**
of acoustic and e.m. waves at cm λ , survey of devices for, **3037**
atmospheric. See Atmosphere.
ionospheric. See Ionosphere.
microwave, in compressed oxygen, **734**
cyclotron, in Bi, **1471**
in substituted phenols, **2032**
in superconducting Al, experimental investigation of, **2354**
in superconductors, theory of, **2355**
microwave and u.h.f., in phenol, cyclohexanol and 1-bromo-
2-chloroethane, **1692**
spectrum of NO in far ultraviolet, **2347**
ultrasonic, in liquids, reverberation method for measurement of,
1603
in water, **2932**
ultraviolet, of atomic nitrogen, **2013**
Accelerometers, BaTiO₃, and associated equipment developed at the
N.B.S., **225**
caged-bobbin type, for measurement of atmospheric drag, **3836**
high-frequency calibration of, use of Michelson interferometer for,
3500
Acoustics, (See also Absorption; Diffraction; Impedance; Resonators;
Sound; Ultrasonics)
air-flow-resistance of materials, apparatus for measuring, **2275**
architectural, survey of, **3615**
of auditoria, comparison of objective and subjective observations
on, **11**
reverberation theory for nonuniform distribution of absorptive
material in, **3272**
of Berlin State Opera House, **3623**
of broadcasting studios, **969**, **1295**
at Marseilles, **3625**
of concert studios, optimum reverberation time of, **10**
insulation provided by walls, experimental investigation of, **3616**
measurements, correlation coefficients for reverberant fields in, **1284**
models for measurements in, required accuracy of matching of
surfaces in, **2947**
reverberation chambers for measurements in, determination of
appropriate form for, **2946**
of rooms, importance and measurements of diffusion, **3619**
sound-level variations at corners etc., **3620**
of studios and practice rooms, **1293**
Acousto-electric effect, theory of, **2678**
Aerials, (See also Lenses, microwave)
aircraft, flush-mounted, radiation-pattern calculation taking
account of surface curvature, **2296**
microwave, stub, radiation patterns of, **2624**
for telemetering systems, **2623**
wing-cap and tail-cap, current distribution in, **2625**
arrays, broadcasting, giving vertical radiation for use in tropics,
3536
broadside, use of Poisson's formula for calculating feeding
coefficients for, **3645**
broadside and end-fire, optimum continuous distribution of
illumination in, **1960**
circular, fixed, for d.f. system, **330**
collinear dipoles, back-scattering cross-section of, **2627**
end-fire, wide-band, for v.h.f. and u.h.f., **1308**
interferometer at Nançay for investigation of solar r.f. sources,
3644
linear, analysis for, **983**
of magnetic line sources on a conducting half-plane, radiation
patterns of, **3642**
ring, with alternative phasing for ground-wave or sky-wave
operation, **326**
with rotationally symmetrical characteristics, **982**
Tchebycheff polynomials in calculations for, **3630**
unipole, driving-point impedances of, **1620**
v.h.f., Yagi type with large number of elements, **1961**
biconical, wide-band, **1305**
circular paraboloid, primary feed for, **2626**
with crossed-parabolic-cylinder reflectors, **985**
cylindrical, input conductance of, calculation of, **981**
integral-equation formulation for, **1617**
transmitting, current distribution along, **980**
wide-band and folded, **2622**, **3640**
deviating, for ensuring television coverage, **3641**
dielectric, end-fire, theoretical and experimental investigation of,
2616
radiation patterns of, calculations of, **3637**
dipole, electric, near corrugated cylinder, radiation field of, **2960**
at interface between dielectrics, radiation resistance of, **1958**
transient fields taking account of earth's curvature, **1959**
vertical, over stratified earth, analysis for field strength due to,
3190
directive, with curved-surface reflector, analysis for, **2631**
dm- λ , for Austrian radio-link network, **3283**
line source, optimum design of, **984**
with parabolic reflector, theory of, **3650**
with paraboloidal reflector, e.m. field inside, **3648**
far-field calculations for, **3651**
Aerials, directive, with parasitic elements, design and characteristics of,
1310
u.h.f., using sheet reflectors, **2628**
ferrite, for aircraft d.f., **1622**
helical, for ground-to-air communication, **1621**
induced thermal noise in, **3638**
mast, insulators for, **1618**
m.f., broadcasting, standardized systems for Australian service,
1304
microwave, aperture radiators, phase centre of, **1962**
Fraunhofer radiation pattern of, simulation in Fresnel zone of,
3643
horn and dielectric-rod designs, **1963**
periscopic, theory of, **3646**
reflectors for, aperture phase errors in, **332**, **1625**
double-curvature, design and construction of, **1626**
experimental investigation of, **1964**
parabolic-cylinder, design of, **1627**
parabolic-reflector, with sector radiation pattern, **2963**
with parasitic cylinder, radiation patterns of, **1624**
passive, metal strips for reflection of radar signals, **1731**
radiation patterns of, measurements by helicopter of, **328**
for radio astronomy, correction for brightness-distribution
smoothing due to, **98**
with raised reflector, radiation characteristics of, **3647**
receiving, measurements on, **668**
Russian terminology for, **2294**
slot, effect of finite plate size on properties of, **1309**
end-fire, design and performance of, **1306**
field distribution of, Mathieu functions in computation of, **2630**
radiation patterns of, calculation of, **2962**
tabulated data for, **1623**
slotted cylinder, radiation characteristics of, **331**
slotted-elliptical cylinder, radiation patterns of, **2629**
s.w., transmitting, flat-top, at Schwarzenburg, winches for, **327**
television, band-I, used for long-range reception in U.S.S.R., **3523**
for bands I and III, **329**
broadcasting, at B.B.C. Crystal Palace station, **3895**
v.h.f., wide-band, for reception of bands I and III, **2295**,
using Yagi array with wing dipoles, **1307**
theory of, error in integral-equation method for, **2621**
u.h.f., broadcasting, using octagonal slotted-waveguide system,
2297
unipole, folded, impedance transforming properties of, **1616**
Aether, theory derived from principle of phase invariance, **371**
Alloys, binary, effect of growth conditions on solidification of, **2146**
Bi-Te, thermoelectric properties of, **166**
covalent, Pr-Ge and Ca-Ge, structure of, **1796**
diamagnetic, Cu, magnetic susceptibility of, **2824**
ferromagnetic. See Ferromagnetic materials, alloys.
Hall effect in, **2437**
Ni-Cr-Al-Cu, 'evanohm', for resistance standards, **3085**
Sb-Te, thermoelectric properties of, **2126**
Altimeters, f.m., high-accuracy, **3746**
Type-AM.210, **3069**
Ammeters. See Meters.
Amplifiers, (See also Circuits)
a.f., cascode-connected cathode-coupled circuit, **2343**
cathode-follower, for matching, design curves for, **3010**
high-gain, using transistor, **1346**
low-power, using Si transistors, **3898**
negative-feedback, noise in, **3009**
peak-limiting, for broadcasting studios, **699**
using transistors, design and performance of, **3324**
as pre-amplifiers for gramophones and microphones, **3323**
'ultralinear', operation of, **701**
output-transformer design for, **677**
cathode-follower, use of triode across output to improve pulse
sharpness in, **3683**
d.c., asymmetrical push-pull, **2004**
with automatic drift compensation, **360**
isolating type using fixed-frequency oscillator and phase-
modulated discriminator, **3316**
using magnetic modulation of superconducting Ta wire, **518**
modulator using Si-junction diodes for conversion to a.c. in,
1663
for slow analogue computers, **989**
unity-gain, for voltmeter, **3485**
voltage and current types, **1341**
d.c.-100 kc/s, including direct coupling and chopper, **3315**
dielectric, optimum working point for, curves for determining, **2649**
differential, with asymmetrical output, **2671**
for low-frequency bridge, **3150**
rejection factor of, **362**
with unselected components, **3011**
distributed, cascaded optimum valve utilization in, **361**
using secondary-emission valves, **1342**
with staggered anode and grid lines, **2670**
feedback, distortion in, analysis for, **1011**
generation of negative impedance by, **63**
RC, analysis based on impedance concept for, **2309**
selective, component tolerances in, **1339**, **3682**
transient response of, **2992**
stability of, effect of loading network on, **2669**
wide-band, using transistors, **1347**

- Amplifiers**, based on field-dependent resistance of porous conductors, 630
with intermediate-point earthing, analysis for, 1338
linear, 15-kW, with grounded-grid stage, 3559
low-frequency, with transformer in feedback path, stability of, 1659
magnetic, applications as control and switching devices, 363
behaviour of saturable reactors in, analysis of, 3320
bistable operation of, 1661
d.c., push-pull, 365
design of, practical method for, 1343
differential, with flux reset control, analysis of, 2344
using etched wiring, 64
using Ge *p-n* junction photocell, 615
high-frequency operation of, 2674
with internal feedback, comparison of, 3012
with low sensitivity threshold, 2673
optimum core shape for, 340
push-pull, with d.c. output, 3013
design of, 2672
rapid-response, for servomechanisms, 3014
self-balancing, for servomechanism, 1660
toroidal cores for, optimum i.d./o.d. ratio of, 996
in 2-speed servomechanism, 1552
microwave, using cavity resonator and molecular beam, 402, 403, 3710
increase of *Q* factor by regeneration in, 348
using disk-seal valves, circuits and measurements for, 1658
based on electron spin resonance, 3032
molecular-beam, theory of, 3709
narrow-band, *Q*-multiplier, using transistors, 1013
with optimum transient response, design of, 1340
pentode, using transistor as anode load, 3008
power, using junction transistors, 366
using transistors, for servo operation, 3685
for pulse-height analyser, 3311
reflex, nonlinear distortion and stability of, 3314
regenerative, use of distributed amplification in, 2002
r.f., wideband, linear, for ship's distribution system, 3317
using tandem transistors, 3001
using tetrode transistors, design of, 3684
using transistors, analysis based on maximum power transfer, 369
with common-base connection, equivalent circuit for, (D)1012
cut-off frequency of, use of neutralization for improvement of, 1345
carthed-base, design of, 1344
h.f., power gain and neutralization of, 3566
of high- α composite type, 927
input resistance and reactance of, measurement method for, 3474
of junction type, design of, 367, 2675
pulse-regenerative, for digital computers, 1014
with series and parallel feedback, design of, 703
temperature stabilization of, 705
using transistors in parallel, theoretical and experimental investigation of, 1662
tuned, using transistors, simplified design procedure for, 368
with triple-tuned coupling circuits, analysis for, 3318
u.h.f., using disk-seal triodes, coupling networks for, 3007
using double-ended lighthouse-type valve, 2589
noise in, 62
video, distribution, 'Chasseral' type, 916
using transistors, for airborne radar equipment, 3322
wide-band, high-frequency compensation of, 1010
i.f., feedback, effect of component tolerances in, 2003
u.h.f., using Type-4163 planar triode, 700
- Analysers**, pulse amplitude, design of, 3680
pulse-height, input amplifier for, 3311
semi-automatic, for pen-recorder chart, 3822
spectrum, for very-low-frequency noise, 2855
waveform, a.f., heterodyne type, 1163
- Antiferromagnetic materials**, α -Fe₂O₃, domain walls in, 2815
magnetostriction effects and domain walls in, 2816
in Au-Mn system, 2450
magnetic moment arrangements and magnetocrystalline deformations in, 1116
- Antiferromagnetism**, influence of crystal electric field on transition point, 1370
spin-wave theory of, criticism of, 726
- Atmosphere**, (See also Ionosphere; Troposphere)
absorption of solar radiation, at 9.35 kMc/s, 2737
at mm λ , by water vapour in, 3041
absorption of 1.5-mm- λ radiation in, 1704
closely spaced horizontal layers in, resolution of radar reflections from, 764
composition of, calculation of molecular diffusive rate of change for heights up to 80 km, 745
infrared radiation in, during solar eclipse, 1705
lower, ionization balance in, effect of earth's α -ray emission on, 3370
microwave refractive index of, measurements in U.S.A. of, at heights up to 125 m, 109
survey of, 108
oscillations in, thermal and gravitational excitation of, 1404
ozone in, investigations during solar eclipses of, 2374
ozone distribution, 748, 3044
determination from emission spectra, 3726
investigation by infrared spectrographic technique, 3725
observation of 'hole' over Alps in, 417
ozonosphere, temperature distribution in, 110
refractive index of, radiosonde MD 1 for measurements of, 3367
- Atmosphere**, solar and lunar tides in, world distribution of, 2068
upper, air-glow in, height of emission of λ 5577 line of, 2738
photometric unit for, 3043
charge transfer in, 3365
conductivity of, diurnal variations at equatorial zone, 1719
daytime brightness at altitudes up to 220 km, 427
density of, and absorption of solar X rays, 3375
density and temperature of, caged-bobbin method for determination of, 3836
falling-sphere method for measurements on, 3723
influence of negative oxygen ions on, 3053
lifetime of ¹⁵S state of oxygen atom during auroral displays, 1053
measurements on, Pitot-tube method for, 3366
night air-glow in, altitude of λ 5577 line in, 3368
and sodium D-line layers in, 3369
origin of Meinel hydroxyl system in, 3042
nitrogen oxides and airglow in, 1405
NO distribution in, 747
ozone as indicator of air streams in, 2047
radio-astronomy investigations of, 2368
rocket measurements of pressure and density in, 2377
sodium layer in, resonance scattering by, 3728
temperatures and winds between 30 and 80 km, 2376
winds in, theory for sound propagation in, 2046, 2721
- Atmospheric electricity**, over continents, 2389
- Atmospherics**, a.f. disturbances in geomagnetic field due to, 3061
a.f. frequency spectrum of, detailed investigation of, 3192
amplitude probability distribution of, measurement of, 3135
annual variations of, 2391
effect of solar eruption on, 2715, 2716
effect on tuned circuits of, 1538
interference caused by, in 3-Mc/s band, 1202
in 5-Mc/s band at Poona, 905
location of origin by remotely observed waveform, 122
low-a.f. signals identified as, 2070
measurements in southern and central Africa on, 2740
'nose' whistler, analysis of, 2393
propagation and waveforms of, 3189
pulse trains in, theory of propagation by reflections, 2394
v.l.f., propagation round earth, 231
waveforms of, analyser for, 1196
effect of propagation in presence of geomagnetic field on, 3060
at ranges up to 200 km, calculations of, 3385
whistling, angle of arrival of, proposed method for determining, 430
observations of, at geomagnetically conjugate points, 1724
at Seattle and Stanford, 2392
propagation of, 3058
1-150-c/s, observations at Oregon of, 3062
5-30-kc/s, effect of solar eclipse on propagation of, 1400
100-kc/s, decrease during cosmic-radiation storm observed near auroral zone, 3059
- Atomic energy**, development in France of, 958, 1507
- Atomic masses**, of elements from Cr to Ge, 96
- Attenuators**, linear-frequency-response voltage-divider type for high voltage, 694
microwave, of moulded iron-aluminate powder mixtures, 1647
unidirectional, using ferrites and delay line, 3300
using waveguide with ferrite slabs, 1994, 3675
using waveguide containing water tube, 51
resistance-type, for frequencies up to 10 Mc/s, 1003
using voltage dividers including Ge point-contact diodes, 50
- Audio-frequency systems**, measurements on, standard 56 I.R.E.3.S1 on, 2475
- Audiometers**, standardization of, 3612
- Aurora**, dispersed-proton theory of causation of, 3383
distribution in Alaska, 1722
E-region ionization and luminosity of, 119
E-region recombination during, 1413
and E_s-layer echoes, relation between, 2390
height distribution of emission lines of, 3739
height observations in Canada, 1723
lifetime of ¹⁵S state of oxygen atom in upper atmosphere during, 1053
Lyman-line emission from, secondary processes due to absorption of, 3384
photometric unit for, 3043
radar echoes from, and structure of, 2739
radar echoes and radio noise from, ionospheric effects on, 3519
radar investigation of, 428, 429
radiation at 3 200 Å from, measurement of, using G-M tube photon counter, 3740
vertical extent of arcs and bands, 1420
- Automation**. See Control systems; Electronic applications.
- Batteries**, (See also Power supplies)
accumulator, patents review of, 1873
using nuclear energy, types and applications of, 1871
- Birefringence**, in isotropic medium, due to intense beam of light, 2680
- Bolometers**, metal-resistance, sensitivity improvement at low temperature, 1499
solid-backed, theory for, 2857
- Book notices and reviews**, Active Networks, 65
Advances in Electronics and Electron Physics, Vol. VII, 3265
Die Anwendung der Photozellen, 2512
Approximations for Digital Computers, 675

- Book notices and reviews, Atlas of Ground-Wave Propagation Curves for Frequencies between 30 Mc/s and 300 Mc/s, 3201
- Basic Processes of Gaseous Electronics, 3353
- Bessel Functions of Integer Orders and Large Arguments, 199
- Colour Television Engineering, 3557
- Einführung in die piezoelektrische Messtechnik, 1519
- Electronics and Television Convention: Proceedings, supplement to *Ricerca sci.*, 956
- Elektronische Halbleiter, 504
- Fundamental Formulas of Physics, 1392
- Glossary of Terms relating to Automatic Digital Computers, B.S. 2641:1955, 1317
- Guidance, 1813
- Handbook Preferred Circuits, Navy Aeronautical Equipment, NAVAER 16-1-519, 3016
- Handbuch der Physik, Band 33: Korpuskularoptik, 3852
- High-Energy Accelerators, 1188
- Index Mathematischer Tafelwerke und Tabellen aus allen Gebieten der Naturwissenschaften, 2470
- An Introduction to Electronic Analogue Computers, 2976
- Linear Feedback Analysis, 3017
- Machine Translation of Languages: Fourteen Essays, 2867
- Mathematische Methoden in der Hochfrequenztechnik, 2833
- Mathische Funktionen und Sphäroidfunktionen, 511
- Meteors, 2741
- Notes on Applied Science No. 10, Noise Measurement Techniques, 1949
- Optique électronique 1: Lentilles électroniques, 3507
- Poluprovodniki v Sovremennoi Fizike, 1149
- Precision Electrical Measurements. Proceedings of a Symposium held at the National Physical Laboratory on 17-20 November 1954, 2497
- Proceedings of the Eastern Joint Computer Conference, 1973
- Proceedings of the Fourth Meeting of the Mixed Commission on the Ionosphere, 2395
- Radio and Television Engineers' Reference Book, 1268
- Reihenentwicklungen in der mathematischen Physik, 198
- Scattering and Diffraction of Radio Waves, 3354
- Schaltungstheorie und Messtechnik des Dezimeter- und Zentimeterwellengebietes, 1015
- Semiconductors in Contemporary Physics, 1149
- Servomechanism Analysis, 2544
- Spectroscopy at Radio and Microwave Frequencies, 1393
- Spheroidal Wave Functions, 3133
- Sunspot and Geomagnetic-Storm Data derived from Greenwich Observations 1874-1954, 2071
- Tables des Fonctions de Legendre Associées, calculées pour le Centre National d'Études des Télécommunications, 512
- Théorie des Réseaux de Kirchhoff. Régime Sinusoïdal et Synthèse, 1348
- Transistors and Other Crystal Valves, 2592
- UKW-Fernempfangsbeobachtungen, ihre Bedeutung für Meteorologie und Funktechnik, 2878
- Ultrasonic Engineering, 890
- Breakdown**, of gases in crossed electric fields, 2024
- strength, in organic liquids, d.c. and a.c. measurements of, 2463
- Bridges**, a.c., high-voltage, capacitors in, method of detecting charges in, 1805
- transistor oscillators and detectors for, 529
- for balance detection, using junction transistors, 1162
- Campbell-type, with internal compensation of eddy-current coupling, 205
- h.v., 50-c/s null indicator for, 214
- low-frequency, differential amplifier for, 3150
- for measurement of differential resistance, 2854
- Schering type, improved-accuracy, for loss-factor measurement, 2172
- modified, for capacitance and loss-factor measurements, 2171
- Broadcasting**, f.i.u., multiplex, with f.m. subcarrier, 264
- in Netherlands, development of network for, 3235
- quality of reproduction in, 3881
- v.h.f., in Spain, plans for, 2882
- 4-program subcarrier system for, 3215
- over lines, factors causing distortion in, 266
- network, v.h.f., British Forces in Germany, 1213
- shared-channel operation, improvement effected by frequency offset in, 1869
- stations, studios and control installations for, 1295
- studios, acoustic design of, 969
- Marseilles, acoustic treatment of, 3625
- sound effects based on frequency conversion for, 2948
- survey of services in U.S.S.R., 3219
- in tropics, operational requirements for, 3536
- Cables**, coaxial, attenuation of, measurement at u.h.f. of, 2481
- characteristic impedance of, choice of, 319
- elliptic inductance of, 2281
- h.f., standardization of, 15
- measurement of coupling impedance of and study of screens for, 1950
- pulse testing of, waveform distortion in, 3142
- impedance deviations introduced by splices in, 1951
- wide-band, design giving high uniformity in, 660
- copper, joints in, resistance of, 973
- video-pair, polythene-insulated constructional and electrical characteristics of, 972
- Capacitance**, formulae for computing, 1318
- Capacitance**, standard of, form permitting calculation from one length determination, 2837
- at Physikalisch-Technische Bundesanstalt, 1500
- variable, with zero initial capacitance, 3499
- Capacitors**, air-dielectric, h.v., corona discharges in, 1805
- ceramic-dielectric, temperature coefficient of, automatic measurement of, 3136
- with chlorinated diphenyl dielectric impregnant, 1320
- electrolytic, forming of negative electrode in, 1983
- Ta-anode, solid-electrolyte, 2982
- feed-through, stacked-disk, using interspersed ferrite washers, 2323
- impedance of, frequency variation of, 33
- metallized-paper, self-healing mechanism and production of, 3294
- nonlinear, with BaTiO₃ dielectric, effect of simultaneous alternating and direct voltages on, 2649
- ferroelectric-dielectric, 3663
- with polychloronaphthalene-impregnated-paper dielectric, 2980
- solid-dielectric, leakage resistance of, 2321
- u.h.f., use of reverse-biased junction diodes as, 2559
- variable, with gas dielectric constituted by neon tube, 998
- wound, shorted-edge, impedance of, 1982
- Carbon**, electrical and thermal conductivities of, variation with temperature of deposition of, 2422
- Carrier-current systems**, for cables, overhead lines and radio paths, standardization of, 2218
- coaxial-cable, 960-channel, Italian, 262
- Swiss, 908
- Cathode-ray oscillographs**, for analysing transients, 1165
- and auxiliary equipment, review of developments since 1936, 1494
- high-precision, 1495
- for investigating gas-discharge characteristics, production of ionizing electron pulse for, 3492
- multi-beam, e.m. scanning system for, 216
- plasmograph, for studying electric discharges, 532
- pulse-magnifying, 2173
- techniques for improving measurement accuracy of, 3490
- time-marker for, 3154
- ultra-high-speed, 1824
- giving vectorial display for voltages in frequency range 5-215 kc/s, 1826
- for very short h.v. phenomena, 2856
- voltage-coincidence, giving multichannel operation with single-beam tube, 1164
- with 43-cm screen, 861
- Cathode-ray oscilloscopes**, automatic beam-brightening device for, reduction of delay time in, 860, (D)3491
- automatic brightness control circuit for, 1825
- for displaying nine traces sequentially, 1823
- Cathode-ray tubes**, (See also under Television)
- 'delectron', theory of, 3591
- with e.s. 'delectron' system and post-acceleration, 2591
- fluorescent screens in, sticking potential of, 637
- with hyperbolic-field deflector, for multiplication, 2924
- manufacture of, factory at Ulm for, 1927
- plant for producing glass components, 638
- manufacturers' tests on, 1919
- potential of screen in, vibrating-capacitor method for measuring, 204
- with profiled target and ribbon beam, for frequency multiplication, 61
- screens for, sedimentation process for, 636
- sensitivity at v.h.f. of, Fourier-transform method for determining, 949
- signal-recorder, 2263
- storage-type, for binary-digital information, 1262
- definitions of terms on, standard 56 I.R.E. 7, S1, 2264
- half-tone, for radar display, 2590
- using mesh coplanar with target, 2923
- secondary-emission processes at insulated targets in, 2262, 2922
- simulation of radar network by, 2077
- Cathode sputtering**, and electron emission, mechanism of, 385
- Cathodes**, (See also Electron emission)
- directly heated by ionic bombardment, for 8-mm- λ c.w. magnetron, 1595
- dispenser-type, comprising CaBa aluminate dispersed in W-Mo alloy, 1916
- field-emission, noisiness of beam from, 3582
- filament structures for transmitting valves, mutual heating between elements of, 2583
- h.f. oscillations in space charge close to, 3581
- high-emission, moulded, diffusion-type, 1258
- L-type, difference between d.c. and pulsed emission from, 1915
- oxide, BaO, effect of electron bombardment on, 3260
- capillary, preparation and properties of, 3585
- chemical potential and donor centres in, 3586
- conduction mechanism in, 629, 2585
- equivalent circuit for, 2586
- conduction properties of, measurement of, 1487
- diffusion of impurities through interface in, 1914
- electrolytic transport phenomena in, 3583
- excess Ba in, relation to emission of, 302
- excess Ba and/or Sr in, measurement of, 301
- hollow, characteristics of, 628
- determination of electron temperature of, 1260
- impregnated, effect of CaO or SrO additions in, 2918
- impregnated-Ni-matrix, preparation and performance of, 626
- indirectly heated, heater/cathode leakage effects in, 2260
- interface impedance in, network representation and effects of, 2584

Cathodes, oxide, *I/V* characteristics at low activation energies, 2917
 moulded, effect of Zr additions on, 946
 of W and alkaline-earth powder, performance of, 945
 Ni-base, experimental investigation of, 3584
 surface treatment for, 631
 porous, anomalous variations of conduction in, 630
 saturation emission of, theory of inflection-point method of measuring, 1259
 SrO-coated Mo filament, deviations from Schottky line for, 1261
 structure changes at high temperature, 625
 ThO₂, significance of electrolysis for life of, 2587
 triple, BaSrCa, X-ray study of, 627
 review of developments in, 2582
 roughness of, effect on beam density of, 3580
 sharp-focusing, for X-ray tubes, 3847
 space-charge standing-wave patterns associated with, influence on valve stability of, 1913
 temperature of, initial-current method for measurement of, 2916
 ThO₂ and Th films on Mo or Pt bases, experimental investigation of, 3259
 tungsten, emission from lattice step on, temperature-and-field-emission technique for observing, 1912

Cells, (See also Batteries; Photocells; Power supplies)
 electrochemical, fuel-type, recent research on, 2224
 primary, Leclanché-type, using MnO₂, basic problems of, 2225, MnO₂ as depolarizer in, 1219, wafer construction for, 2888
 containing MnO₂, depolarization of, 1872
 secondary, Ni-Cd, for low-voltage stabilization, 1220

Circuits, (See also Networks)
 for aeronautical equipment of U.S. Navy, standardization of, 342
 amplitude-limiter, neutralization of, 3676
 analogue-to-digital converter, 1009
 analysis of operation of, 'negative-frequency' concept in, 683
 counter, bidirectional, using dekatron, 2319
 binary decade, giving complements of nine, 3312
 for decoding p.c.m., using surface-barrier transistors, 1656
 using dekatrons, 1337
 using gated binary trigger cascade, 3310
 quinary, composed of binary and ternary stages, 341
 using secondary-emission valve, 3003
 4-decade, for acoustic diffusion measurements, 3619
 counting and batching, using gas-filled decade tubes, 1981
 coupling, d.c., using voltage-stabilizer valves, 692
 current-waveform-generating, 695
 feedback, use of signal flow graphs for analysis of, 2985
 ferromagnetic, analysis for, 2986
 for switching and counting, 2647
 gating, for selection of pulses for spectrum analysis, 3313
 integrator, 'diode-pump', as frequency-sensitive relay, 1007
 limiter, operation of, Fourier-series analysis of, 2879
 printed, photo-etched, simple methods for producing, 1924
 production and assembly of, 3902
 silver migration by electrolysis in, prevention of, 3127
 pulse-distributor, using frame-grid heptode valves, 3262
 scaling, high-resolution, 3309
 using point-contact transistors, 3005
 with 2- μ s resolution, using junction transistors, 3006
 sequential-switching, method for synthesizing, 28
 standardization of, N.B.S. work on, 2324
 switching, bistable flip-flop component tolerances for, 2648
 using bistable magnetic amplifiers, 1661
 based on magnetoresistive effect, 1319
 multistable, using transistors, 37
 using *p-n-p-n* Si transistors, 3899
 for television video-signal change-over, 2551
 10-channel multiplex, using beam switching tube, 3662
 transient response of, method of determination from frequency response, 337
 using transistors, survey of, 1984
 trigger, effect of noise on, 3681
 trigger, pulse-height discriminator, using multielectrode valve as negative resistance, 1336
 trigger and quantizing, for delta modulation and speech waveform investigation, 1540
 voltage quantizer, 1008

Clocks, (See also Time)
 quartz, at Physikalisch-Technische Bundesanstalt, frequency stability of, 3468

Coils, choking, impedance of, frequency variation of, 33
 crossed, with common core, operation and applications of, 3293
 ferrocube-pot-cored, calculations for, 2646
 focusing, oxide-coated Al foil, 2979
 natural oscillations of coupled windings in, 1636
 parallel-wound, theory and design examples, 3660
 for producing uniform magnetic field, design of, 2695
 self-capacitance of, methods for measurement of, 3475
 use of ferrites in, survey of, 995
 winding machines for, design of, 1978

Colorimeters, photoelectric, for television picture tubes, 1229

Colorimetry, C.I.E. trichromatic coefficients, automatic computation of, 70

Colour, trichromatic systems, differential chromaticity thresholds in, 583

Communication equipment, for dm- λ multichannel f.m. system, 1197
 testing of, using ultrasonic fading simulator, 3191
 Type-SFR329, for four-channel telephony, 1209

Communication systems, (See also Carrier-current systems; Radio links; Radiotelegraphy; Radiotelephony; Telegraphy; Telephony)
 for aircraft, symposium on, 3885
 in H.M. telegraph ships, modernization of, 2539
 intelligibility of speech in, effect of amplitude-limiting on, 3614
 I.R.E. symposium in June 1954 on, 559
 line and radio relay, review of development of, 1541
 marine, symposium on, at Boston, Mass., 1954, 1726
 military, I.R.E.-A.I.E.E. symposium in April 1954 on, 560
 mobile, frequency-stability requirements for, 3882
 number of subscribers per channel in, 1551
 v.h.f., channel spacing in U.K. for, 3884
 for works transport, 570
 multicarrier, crosstalk in, 2219
 multichannel, crosstalk in, spectral density of, 2883
 f.m., nonlinear distortion and noise in, 3216
 measurement of crosstalk in, 2167
 p.c.m., asynchronous, 1204
 multiplex, frequency-division, f.m., echo distortion in, 1867, (D)3214
 microwave, minimization of intermodulation distortion in, 1547
 regional, using p.p.m., 3878
 time-division, 'quadriphase', 566
 public-address, using radio carrier, 2278
 pulse, survey of, 562
 survey of development of, 261
 pulse-multiplex, for music transmission, 2534
 transmission and reception problems in, 1546
 radio-paging system using transistors, 3883
 reduced-bandwidth speech systems, 2605
 'vobanc', 2943
 reliability of operation of, determined from probable lifetime of elements, 2217
 using scatter propagation, symposium on, 3185
 signal interference in, effect of selectivity curves on, 2222
 s.s.b., low-power, for short or medium distances, 1545
 suitability of ionospheric-scatter propagation for, 1860
 survey of technical factors in, 565
 topological study of, matrix method for, 3212
 u.h.f., long-range, design of, 910
 multichannel, using scatter propagation, 263
 multiplex, based on extended-range signals, 265
 u.s.w., multiplex, design based on tropospheric scatter propagation for, 567
 v.h.f., frequency-multiplex, measurement of transmitter characteristics of, 217
 4-channel, Type-STR128, for Argentina, 1208

Communication theory, arithmetical identification of messages by index number, 2531
 bandwidth and channel capacity required for formant information of speech, 3613
 binary signalling alphabets in, 1865
 channel-capacity formula, rigorous proof of, 259
 information rate, new interpretation of, 3875
 interference stability of systems with correcting codes, 3876
 pre-correction of transmission errors, 907
 sampling of band-limited functions, 1542

Communications, in India, research from 1865, 2215
 symbols used in, draft German standard for, 2270

Components, (See also Electronic equipment and individual items)
 for communication equipment, miniaturization and improvements effected in Japan, 2008
 electronic, standardization of, 32
 high-temperature, to meet Service demands, 3658
 microwave, bibliography of advances in 1954, 1952
 using microwave strip lines, symposium on, 1611
 papers presented at 1954 Western Electronic Convention, 1633
 reliability of, statistical techniques in, 1803
 silver migration by electrolysis in, prevention of, 3127
 temperature-dependent, a.c. admittance of, 676
 testing of, at Laboratoire Central des Industries Électriques, 2840

Computers, analogue, bibliography including Russian literature on, 3284
 correlator for a.f. noise measurements, 1968
 c.r. tube with hyperbolic deflector field for multiplication, 2924
 data for available types of, 2966
 differential analyser, German installation, 2302
 at G.M. Krzhizhanovskii Institute, 3285
 high-speed electronic, 24
 technique for high-speed operation with, (D)2968
 timing device and nonlinear units for, 2637
 diode function simulators for, 2970
 electromechanical, for investigations of synchrotron operation, 2973
 Fourier synthesizer using magnetic-drum store, 987
 function generators for, linear-interpolation type, 2301
 general-purpose, for quantity production, 2299
 'integral analyser', function generator for, 1967
 for investigating shock spectrum of electronic equipment, 1969
 isograph, using magstrip transmitters, 334
 for linear and nonlinear differential equations, in U.S.S.R., 2636
 with low-gain amplifiers, for aircraft flutter problems, 335
 modified-Wheatstone-bridge type, for solving tangents, 2969
 multipliers for, triangular-wave type, 3287
 a.m.-a.m. type, 2306

- Computers, analogue, multipliers for, high-accuracy, 1312
 survey of, 2967
 nonlinear RC networks for, 29
 photoelectric, for studying linear systems, 30
 principles and applications of, 2635
 simplified, multipurpose, 988
 simultaneous multiplier/divider for, 3655
 slow, d.c. amplifier for, 989
 stability criterion for, 671
 use with resistance-network analogues, 673
 usefulness of matrix methods in conjunction with, 672
 3-dimensional, Tridac, detailed description of, 2300
 analogue and digital, junction-transistor circuits for, 2304
 code disk for data conversion in, production of, 2975
 digital, for automatic electron-trajectory tracer, 3833
 binary adder with multiple-cell gas triode for, 3261
 circuits used in, 2638
 convention held in London, 1956, 2971
 C.S.I.R.O. Mark I, starting routines for, 669
 design and applications of, 1630
 design and programming of, 986
 EDSAC II, factors affecting reliability in design of, 3654
 e.s. pulse generator for, 1632
 fast multiplier using transistors, 1631
 IBM experimental model using transistors, 2305
 image-converter tubes as storage elements in, 3289
 improved iterative process for effecting division in, 25
 input/output devices for, 3653
 isograph root finder, 1315
 logic circuits using semiconductor diodes for, 2303
 logical design of, 2965
 magnetic-core circuits for, 1313
 Manchester MK1, simplification of coding for, 333
 multiple pulse-stream generator for, 2972
 photoelectric numeral scanner for, 1316
 pilot ACE, optimum coding in, 670
 potentiometer-type unit used with teleprinter perforator for feeding instrument readings into, 1314
 program-controlled, PERM, 1311
 pulse-regenerative transistor amplifiers for, 1014
 rectangular-hysteresis-loop cores for, 497
 relay-operated accumulator for addition in, 2639
 SEAC and DYSEAC, combined operation of, 2633
 sequential switching circuits for, 28
 small, with magnetic-drum store, at Dresden, 2634
 storage elements for, gas-filled diodes as, 1972
 storage system using high-density magnetic-tape recording, 31
 superconductive element (cryotron) for, 1980
 symposium of papers in Elektronische Rundschau on, 1629
 transistor bistable circuits in, use of, 1970
 as translating dictionary, 26
 universal unit for small-quantity production, 336
 Williams-type storage system with increased packing density for, 3288
 digital decoder for, 2632
 electronic, definitions of terms on, Standard 56 I.R.E. 8.S1 on, 3657
 magnetic shift register with digital-to-analogue converter for, 3286
 mechanical binary-to-decimal converter, 1966
 Russian bibliography for 1950-1954, 680
 solution of differential equations using relaxation methods in conjunction with, 3821
 special-purpose, for machine control, 27
- Conduction**, in lattice, effect of free electrons on, 2017
 in metals, cyclotron resonance under anomalous-skin-effect conditions, 3334
 effect of electron collisions on skin effect, 711
 effect of magnetic field on, 3021
 electron-phonon-interaction theory of, 379
 electron-plasma theory of, 3689
 electron theory of, 3332
 mechanism responsible for electron energy dissipation in, 3020
 motion of electrons in magnetic field, 380
 and application to diamagnetism, 381
 in solids with spherically symmetric band structure, 3331
 in superconducting tin, effect of impurities on penetration depth at r.f. in, 3333
 in ThO₂ crystals, polarization effects in, 2119
- Conductivity**, of anisotropic thin films, 3084
 anomalous skin effect, evaluation of surface impedance in, 3022
 of Cu, effect of lattice imperfections on, 790
 magnetic-field variation of, tensor analysis of, 2685
 of metals, dependence on surface charges of, 2421
 theory of, 1020
 table of integrals in, 3691
 of porous media, formulae for, 3761
 of Sb-Cs layer with applied potential, 2417
 of thin evaporated Ag films, effect of e.s. charge on, 3763
 of thin metal films, 2418
- Conferences and conventions**, aircraft communications symposium, Utica, N.Y., Nov. 1955, 3885
 A.M.P.É.R.E., radio-frequency physics, Geneva, 1956, 3031
 communications by scatter propagation, Washington, Nov. 1955, 3185
 digital computer techniques, London, 1956, 2971
 electrical discharges in gases, Delft, 1955, 1674
 electroacoustics, Kiev, July 1955, 967, 2608
 electronic methods of pictorial reproduction, Jan. 1956, 2190
 Conferences and conventions, electronics and television, Milan, April 1954, (B)956
 information theory, London, 1955, 260
 intermetallic semiconductors, Baldock, Herts, April 1955, 145
 ionospheric drifts, New Delhi, July 1955, 3045
 I.R.E.-A.I.E.E. symposium on military communications, New York, April 1954, 560
 I.R.E. discussion of organization of, 1600
 I.R.E. symposium on global communications, Washington, June 1954, 559
 I.R.E. 1955, Index to Convention Record, 1266
 I.R.E. 1956 National Convention, program and abstracts of papers for, 1923
 lighthouses and other aids to navigation, Scheveningen, 1955, 123
 low-temperature magnetism, Kharkov, July 1954, 822
 luminescence, Minsk, 1955, 2679
 marine communications and navigation, Boston, Mass., 1954, 1726
 microwave strip circuits, Oct. 1954, 1611
 physical acoustics and ultrasonics, Moscow, 1955, 305
 physics of ionosphere, presented at Cambridge, 1954, 755
 physics of semiconductor surfaces, Philadelphia, 1956, 3768
 piezoelectricity, Moscow, 1955, 2770
 semiconductors, Leningrad, Feb. 1955, 3767
 Ottawa, Feb. 1956, 2778
 U.S.S.R., April 1955, 459
 solar eclipses and ionosphere, London, Aug. 1955, 742
 sound and vibrations in solid bodies, Göttingen, April 1955, 2271
 speech communication research symposium, San Diego, Nov. 1955, 3608
 television, Leningrad, 1954, 277
 thin films, Algiers, April 1955, papers presented at, 3124
 U.R.S.I., 11th General Assembly, The Hague, 1954, 955
- Contacts**, bridge and short-arc erosion, 2642
 comparison of various metals in service, 2310
 design and materials for, 3813
 resistance of, effect of aging, etc. on, 2461
 rubbed-on indium amalgam, low-resistance, 2124
- Control systems**, (See also Electronic applications; Frequency control; Servomechanisms)
 automatic, general survey of, 868
 response functions and vector loci of, 690
 for automatic factory operation, use of digital methods in, 1834
 feedback, symbols for, standard 55 I.R.E. 26.S1 on, 571
 terminology of, standard 55 I.R.E. 26.S2 on, 1173
 for heat exchangers, equivalent-circuit method for design of, 1503
 and instrumentation, for nuclear reactors, 3838
 for machine processes, use of computers in, 27
 for machine tools, 1172, 1502
 nonlinear, with random inputs, analysis of, 2498
 using optical diffraction gratings, for machine tools, 2499
- Converters**, d.c./a.c., using transistor relaxation oscillator, 2884
 using Si-junction diodes, for d.c. amplifiers, 1663
 d.c./d.c., using transistor relaxation oscillator, 573
- Cooling**, importance of, in relation to design of electronic equipment, 3290
- Cores**, (See also Coils)
 ferrite, toroidal, with rectangular magnetization loops, behaviour in nonuniform fields of, 490
 ferromagnetic, rectangular-hysteresis-loop, for digital computers, 497
 toroidal, for magnetic amplifiers, optimum i.d./o.d. ratio of, 996
- Correlation coefficients**, measurement of, use of oscilloscope scatter diagrams for, 3827
- Cosmic radiation**, r.f., (See also Radio astronomy)
 lower limiting frequency for transmission through ionosphere of, 3514
 and magnetohydrodynamic theory of plasma, 3346
 observations of, at frequencies near 1 Mc/s, 2369
- Cosmic rays**, intensity variation near 1954 sunspot minimum, 2712
 use of observations for deriving geomagnetic dipole-field coordinates, 2371
 27-day recurrence tendency of, 1045
- Counters**, (See also under Circuits)
 G-M, influence of temperature on spurious counts in, 2511
 externally graphited, behaviour on exposure to radiation of, 885
 oxygen-quenched, 3505
 rare-gas/halogen, double pulses in, 2865
 proportional, Ar-filled, discharge mechanism in, 1845
 radiation, rate ratio meter for, 3850
 radiation, use of transistors in, 3175
 scintillation, large-area, 887
 optical aspects of, 1516
 portable, for geology applications, 888
 physics of, 886
- Couplers**, directional, bibliography on, addendum to, 2165
 incorporating filters, for multiplexing at 225-400 Mc/s, 353
 using magnetically controlled ferrite in rectangular waveguides, 667
- Crosstalk**, (See also Interference)
 in multichannel systems, measurement of, 2167
- Crystals**, (See also Piezoelectric materials; Quartz; Resonators)
 CdS, sublimation method of preparing, 2145
 defects in, effects on lattice vibrations of, 1042
 metal, with pure surfaces, vacuum congelation method for preparing, 1140
 polar, interaction of excitons with lattice vibrations in, 2705
 with structure modified by alloying or pressure, energy levels of, 839

- Crystals, surface states of, theory of, review including Russian work on, 372
 with zinc-blende structure, spin-orbit coupling effects in, 1139
 symmetry properties of energy bands of, 1138
 zone-melting purification process for, mathematical analysis of, 1141
- Current**, alternating, exact measurement of, 1485
- Demodulators**, a.m.-f.m., based on variation of slope of pulse edge, 551
 f.m. using recording system and p.f.m. converter, 3178
- Detection**, of f.m., theory of, 2521
 of pulse signals in noise, 439
 comparison of correlation and integration techniques, 251
 in intensity-modulated visual display, 129
 of signals in noise, analysis for, 3202
 effect of contrast on visual detectability, 2400
 of sinusoidal signal, effect of random noise on, 904
 square-law, of background noise, analysis for, 3524
- Detectors**, a.m., linear, influence of time constant in noise measurements, 1864
 autodyne, for paramagnetic resonance, theory of, 1664
 diode, effect of fluctuations in i.f. stage on, 2208
 f.m., using quadrature-grid pentode as locked oscillator, 1534
 ratio-type, simple explanation of operation, 252
 infrared-radiation, portable, using photocell and light chopper, 536
 microwave, using travelling-wave valve with periodic magnetic focusing system, 2259
 synchronous, advantages for asymmetric-sideband systems, 1566
 using transistor amplifiers, for a.c. bridges, 529
- Dielectric constant**, of $BaTiO_3$, pressure variation of, 788
 of electroluminescent ZnS, 2411
 of imperfect nonpolar gas, 378
 of ionized gas, resonant-cavity measurements of, 80
 of liquids, measurement of, cell for, 1814
 at $dm \lambda$, using coaxial-line method, 1157
 pressure variation of, 2769
 measurement of, cavity-resonator method for, 2657
 cavity-wavemeter method for, 1815
 at $dm \lambda$, coaxial-line method for very small amounts of material, 2160
 'thin-sample' slotted-line method for, 2845
 at 1-50 Mc/s, line corrections in, 2477
 of powders, formula for, 3760
 of quartz, temperature and frequency variation of, 1474
 of solid loss-free bodies, measurements at $dm \lambda$ and $cm \lambda$, 210
 of two-phase mixtures, empirical formula for, 787
 of water, measurement at low frequency of, 1159
- Dielectric properties**, absorption in dilute liquid polar solutions, 1739
 of $BaTiO_3/SrTiO_3$ solid solutions, 3757
 of building materials, at $cm \lambda$, 1741
 of ceramic $BaTiO_3$, influence of method of preparation on, 1740
 formation of rectifying layers near electrodes, conditions for, 448
 of ice, at very low frequencies, 377
 losses, of ionic dielectrics in strong electric fields, 2767
 of quartz, at low temperatures and low frequencies, 451
 microwave, measurement of, Brewster-angle method for, 208
 by cavity-resonator method, 1156
 using coaxial-line method, 207
 of solid insulating materials, temperature dependence of, measurement of, 3139
 of niobates and tantalates of divalent metals, 3402
 of paper in piles, measurements at 9-35 kMc/s of, 3140
 of pinacol hydrate, experimental investigation of, 1475
 r.f., report of Geneva conference on radio-frequency physics, 3031
 of solid dielectrics, $cm \lambda$ measurements of, 1155
 of water-containing clays, $dm \lambda$ measurements of, 450
- Dielectrics**, (See also Insulating materials)
 artificial, using arrays of holes in high-strength plastics, 1437
 comprising arrays of particles, calculation of dielectric constant of, 1671
 calculation of permittivity and permeability of, 140
 formed of stacked perforated plates, 1628
 microwave transmission through, 1035, 1385
 films, electron-bombardment effects in, 1778
 formation of anode-interface layers on, 2125
 liquid, electric strength of, 2463
 mechanical force produced by electric field on, 3019
 nonlinear, introduction to theory of, 784
 secondary emission from, 3344
 theory of, survey of problems in, 3420
- Diffraction**, of acoustic wave, by cylinder, 3269
 by cylinder, semiasymptotic series describing field in, 1377
 of e.in. waves, by aperture in plane screen, 2366
 by arbitrary aperture, integrals occurring in analysis of, 1379
 at $cm \lambda$, by conducting spheres in waveguide, 1381
 by rotationally symmetrical apertures, experimental study of, 2699
 by half-plane, 3704
 by long metal cylinders, parallel-plate technique for studying, 400
 by parallel-strip grating, 1380
 by perfectly conducting strip, 89
 by plane screen, for case of electric vector parallel to edge, 2700
 strict theory of, 399
 by spheres, 1689
- Diffraction**, by half-plane, analysis for cylindrical pulse, 3703
 by plane aperture, four-dimensional theory of, 1669
 by plane directionally conducting screens, application of Babinet's principle to, 3705
 by slit, variational analysis for, 1378
 by wedge, asymptotic series in expressions for, 2348
- Direction finders**, Adcock, polarization errors due to aerial bending in, 758
 rapidity of bearing fluctuations in, 3065
 8-element, spacing error of, 1423
 for aircraft, ferrite aerials for, 1622
 automatic, for recording rapid fluctuations of bearing, 2744
 long-base, 'Wullenwever', 3066
 wide-aperture, using ring array of fixed aerials, 330
- Direction finding**, h.f. systems, design of, 1422
 plotting aid for, 2743
 on ships, difficulties due to presence of resonant structures in, 432
- Discharges**, (See also Breakdown; Plasma)
 in a.c. field, breakdown-voltage/frequency characteristic of, 3338
 arc, low-voltage ball-of-fire mode in, 1359
 breakdown in uniform field, experimental investigation of hydrogen, 387
 c.r.o. instrument (plasmograph) for study of, 532
 in diode with hot cathode, initiation of, 951
 electrodeless, disappearance of adsorbed gases from dielectric surfaces under, 1358
 electron avalanches in, statistical study of, 3337
 glow, determination of cathode fall of potential in, 2358
 field in, electron-beam-probe method of investigating, 390
 reduction of cathode fall by illumination of cathode, 389
 glow-to-arc transition in, field-emission mechanism for, 2356
 h.f., experimental investigation of, 2689, 3026
 influence of magnetic field on breakdown voltage of, 716
 low-pressure, starting conditions for, 2357
 induced, in rare gases, experimental and theoretical investigation of, 1675
 influence of light on mechanism of, 74
 intermediate frequency, experimental investigation of, 3025
 international symposium at Delft, 1955, 1674
 in liquid hydrocarbons, formative time lags in breakdown in, 2022
 low-pressure, ion oscillations at cathode potential minimum in, 2020
 oscillations in, survey of, 3692
 rotation of plasmoids in magnetic field in, 2021
 'microdischarges' in vacuum apparatus operated at high voltage, 1025
 microwave, electron affinity of hydrogen in, 1357
 in nonuniform field, experimental and theoretical investigation of, 3024
 between parallel plates, analysis for initial current growth in, 388
 pre-breakdown ionization currents in hydrogen, 1023
 u.h.f., in argon, breakdown field for, 3693
 in uniform field, electron avalanches in, statistics of, 3023
 V/I characteristics of, probe measurements of, and gas density in, 2686
- Discriminators**, for f.m. receiver, pulse-counting circuit for, 1861
 frequency, linear, simple design for, 3325
 microwave, using distorted cylindrical resonator, 2007
 voltage, with pulse output, 1486
- Distortion**, in broadcast transmissions over lines, due to phase delay and frequency-band limitation, 266
 due to echoes, in f.m. frequency-divisor multiplex systems, 1867, (D)3214
 in feedback amplifiers, 1011
 intermodulation, in microwave multiplex systems, minimization of, 1547
 nonlinear, of nonperiodic signal in electroacoustic system, 314
- Earth**, conductivity of mantle of, 743
Earth satellites, U.S.A. plans for I.G.Y. 1957-1958, 2718
Electrets, mechanism of, experimental investigation of, 1797
Electric fields, ionization of gases at metal surface by, 3329
 measurement of, method using reflector for, 2843
 paper-sheet analogue for investigating, 1819
 removal of thin films from metal surfaces by, 3330
- Electrical properties**, of MnTe, 2812
Electrical theory, and mechanics, analogies between, 67
Electroacoustic equipment, (See also Loudspeakers; Microphones; Sound recording; Sound reproduction; Transducers)
 application of ^{11}I in, 3810
 nonlinear distortion of nonperiodic signal in, 314
Electroacoustics, conference on, Kiev, July 1955, 967, 2608
Electrodynamics, Ampère force, revised analysis for, 1371
 classical, as distribution theory, 2027
 fluid self-excited dynamo, 3348
 motion of two electric fluids, solutions of equations for, 1688
 nonlinear, theory of, comments on, 84
- Electroluminescence**, (See also Phosphors)
 in alternating field, reinforcement by rotation of crystals, 709
 brightness variations in alternating field, 137
 dependence of light amplification on light intensity in, 375
 in disordered ZnS, 1736
 experimental study using ZnS single crystals, 1432
 in GaP, 1433
 influence of lifetime of excited centres on waveform of, 1068
 pulse-excitation investigation of, 374
 survey of knowledge on, 780

- Electroluminescence**, in ZnS, mechanism of, 1071
in ZnS-Mn films, in unidirectional field, temperature variation of, 1069
- Electrolysis**, for etching and plating very small areas, 1148
- Electrolyte tank**, for automatic tracing of electron trajectories, 3833
general-purpose equipment, design of, 1820
investigation of strip transmission lines by, 2283
- Electrolytes**, impedance of, frequency dependence of, 3812
- Electromagnet**, low-remnance, for general laboratory purposes, 3711
- Electromagnetic field**, investigation of by means of multidimensional LC networks, 2491
at junction of three media, analysis for, 88
matrix description of, 85
in stratified media excited by dipole, calculation of, 3036
- Electromagnetic theory**, classical non-conservative, fundamental equations of, 2694
e.m. momentum and electron inertia in current circuit, 2363
generalized macroscopic equations, 2028
magnetic moment of electron, 2683
Maxwell's equations, asymptotic solutions involving fractional powers of frequency, 1667
integration of, 3698
of moving matter, 1032
multipole expansions in radiation theory, 1372
new classical model of electron, 2681
- Electrometers**, vibrating-capacitor, low-zero-drift, 855
- Electron beams**, current density in, effect of cathode roughness on, 3580
deflected, knife-edge method for investigating aberrations of, 1677
flow of microwave power in, 300
of given shape, theoretical determination of field required to produce, 2907
interaction with r.f. fields of, quantum effects in, 393
irrotational, theory of, 1902
in long-beam valves, space-charge waves in, analysis for, 1583
in magnetic field, instability of, 2568
magnetically focused, using concave cathode, theory of, 618
positive-ion effects in, 623
plasma oscillations in, 289
propagation of growing waves in, conditions for, 1906
space-charge effects in, review of, 77
spherical aberration due to, 1363
space-charge waves in, 2912
with strong space charge, extended-range energy distribution in, 940
transverse current distribution in, X ray method for studying, 941
- Electron emission**, (See also Cathodes; Photoelectric emission)
from abraded metal surfaces, experimental investigation of, 1028
as after-effect of glow discharge, experiments on, 391
from borides of rare earths, work function for, 167
and cathode sputtering, mechanism of, 385
field-dependent, thermionic, from tarnished surfaces, 75
from W, 392
field-type, at contacts between semiconductors, 1084, 3091
departures from Fowler-Nordheim law in, 1026
enhanced effect due to surface irregularities in, 1362
ionization and desorption effects associated with, 1360
at medium field strengths, from Ag, Al and Fe, 2360
from semiconductors, theory of, 717
theory of, 2690
from tungsten point, verification of theory of, 2359
from metal surfaces after mechanical working, 1027
from metals, effect of surface irregularity on, 2023
heated by high-density currents, 3690
influence of adsorbed films on work function for, 3027
secondary, from Ag films, 1680
from alkali halide crystals, 3695
from Be films, 1679
from Cs₃Sb, 3787
dependence on angle of incidence of 1.3-MeV primaries, 3343
from dielectrics, 3344
energy distribution of, evidence of Auger process in, 3028
measurement of, 851
from metals bombarded by ions and neutral particles, 3341
from solids, theory of, 720
secondary and photoelectric, from Cs-Sb, effect of electron bombardment on, 1429
from superconductors, experimental investigation of, 3340
thermionic, from semiconductors, experimental investigation of, 1887
from W, velocity distribution of, 1367
thermionic and field-type, unified theory for, 3694
work function, factors affecting, 2351
of metals and semiconductors, 2352
of Pb, experimental determination of, 3112
- Electron gas**, in metal, magnetic properties of, 1021
- Electron guns**, for c.r. tubes, comparison of triode and tetrode types, 950
high-transconductance, use of mesh control grid in, 1597
low-voltage, anomalous emission effects in, 1177
for noncircular spots, design of, 3593
Pierce-type, analysis of beam formation with, 2581
design of, 1910, 1911
triode, for pencil beam, design of, 1257
- Electron lenses**, cylindrical, errors of, 1181
e.s., calculation of, matrix methods for, 3168
chromatic correction in, 1180
nonrotationally symmetrical, analysis for, 3848
magnetic, adjustable, 1842
- Electron lenses**, magnetic, aperture aberration in, 3172
aperture error of, 2862
lower limit of, 539
asymmetrical, field distribution in, 880
pinhole construction of, 881
cylindrical, armoured, 2508
focusing properties of, 1510
focusing curve representing various types of, 882
formulae and curves for, 2506
free from image rotation, 1598
calculation of induction in, 1513
short-focus, for very-high-velocity electrons, design of, 3169
for systems with curved axes, 1511
4-pole, for 50-MeV protons, 3849
numerical ray tracing in, 76
- Electron microscopes**, aperture aberration in, 5th-order, 3171
chromatic aberration in, experimental investigation of, 883
console-Type-EM4, 540
e.s., intermediate-accelerator type, 1514
field-emission type, condition for seeing molecules with, 2505
high resolution associated with nonuniformities of emission tip in, 2504
field ion type, resolution of, 3329
'microdischarges' in, 1025
mirror-type, construction and performance of, 884
scanning type, advantages and applications of, 1179
stereograms from, depth determination and requirements for, 1183
Type-EM75kV, 1841
- Electron microscopy**, phase contrast and chromatic contrast in, 2507
using pulsed 'temperature-and-field' emission, 2863
reflection-system, use of cylindrical lens for distortion reduction in, 1182
stereoscopic reflection technique, 3170
- Electron optics**, analysis based on analogy with geometrical optics, 394
calculation of field distribution with specified imaging properties, 1361
of cylindrical systems with plane of symmetry, aberrations in, 2187
equations for wide beams taking account of chromatic aberration, 2509
e.s., fields permitting calculation of electron paths, 3167
fundamental equation of, exact solution of, 78
mirrors, observation of ferromagnetic domains by means of, 1794
properties of magnetic gaps, 1178
relation between arbitrary field and rotationally symmetrical field, 718
shadow technique, imaging atomic sources by, 2861
quantitative methods in, 1515
wave-mechanics theory of, 707
- Electron telescope**, limitation of star magnitudes attained by, 2188
- Electron trajectories**, in crossed electric and magnetic fields, method of tracing, 1821
rubber-membrane method, for determination of, 2851
for investigating diodes with limited emitting surfaces, 2852
- Electronic applications**, aerosoloscope particle counter using photomultiplier, 1836
automatic tracking of metal objects, 3158
balloon-borne photoelectrically controlled sun-tracking system, 3844
camera-shutter tester using photoelectric integrator, 889
ice detector for lighter-than-air craft, 870
machining metals by h.f. spark, 1847
measurement and control systems for continuous-flow production plants, 2500
measurement of displacement by gas-discharge transducer, 3159
measurement of light-water concentration by nuclear resonance, 2502
measurement of mechanical displacement using capacitance probe, 228
measurement of projectile velocity by photocell circuit, 3160
measurement of rapid temperature fluctuations, 3258
measurement of temperature, humidity etc. using thermistors, 3501
measurement of thickness of nonferrous metals using skin effect, 1835
measurement of velocity of explosion-wave fronts, microwave method for, 1833
measurement of very short time intervals using scanning image-converter tube, 3502
phase comparator for spring testing, 1505
photoelectric angular-error detectors for research rockets, 3162
photoelectric photography of spectra of faint stars, 3161
to picture reproduction by printing, 2190
prescribed-function vibration generator, 2501
presentation of optical diffraction patterns using television camera tube, 2180
radar motor-vehicle speed meters, accuracy of, 866
remote radio control of train, 3179
scanning apparatus for particle analysis, 3176
tachometer, high-sensitivity, 3841
'television' microscopy, 3837
thermistor hypodermic needle for subcutaneous temperature measurement, 3840
timing circuit for photography, 1175
translating dictionary, digital computers as, 26
- Electronic equipment**, airborne, military, reliability of, 2595
automatic production of, report on developments in, 2266
Sargrove E.C.M.E. machine for, 959
for small batches, 960
climatic considerations in design of, 3598

- Electronic equipment, cooling arrangements for, 3290
dip-soldering method for use with printed circuits, 2928
embedment resins and technique for, 2829
papers presented at 1954 Western Electronic Convention, 1633
reliability of, 2596
prediction method based on failure data of U.S. Navy, 1926
systems approach to, 2268
use of redundant components for improvement of, 2267
shock spectrum of, analogue-computer arrangement for investigating, 1969
standardization of functional sub-assemblies for U.S. Navy, 1267
thermoelectric cooling for, 3224
- Electrons**, in alternating electric and constant magnetic fields, velocity distribution of, 79, 724
diffusion in gas at low temperature in electric field, 1673
energy losses on passage through thin foils of, 3342
inelastic reflection at Cu₂O surface of, 3029
inelastic scattering of, by Ni and Mo targets, 719
interaction, of beam electrons with electrons in thin films, 1678
in solids, dielectric theory of, 1017
and ions, collective description of interactions of, 384
liberation of, at metal surfaces and in gases, due to impact of low-energy ions, 386
in magnetic field, Čerenkov-type radiation from, 2364
in metals, motion in magnetic field, 380
and application to diamagnetism, 381
passage through metal foils of, energy losses in, 1364
penetration on bombardment of Al, 1676
scattered from solids, measurement of energy of, 849
secondary, measurement of energy of, 850
self-acceleration of, physical interpretation of, 2014
slow, energy losses in collisions in diatomic gases, 2688
specific charge on, 2015
tables of parameters relating to motion of, 2682
transmission through Al₂O₃ films, 1365
- Electroscope**, gold-leaf, high-sensitivity, 1161
- Electrostatics**, application of circle and sphere theorems to, 3688
charging in plastics, 2684
e.s. centre of conductor, 2350
e.s. field, of cylindrical trough with symmetrically placed plane conductor, 1018
new theorems on, 3328
rotation of dielectrics produced by, 71
Johnsen-Rahbek effect, theory and applications of, 1670
potential due to uniformly charged disk, 2016
- Electrostriction**, of BaTiO₃, 1075
in liquids, generation of ultrasounds by, 310
molecular theory of, 2353
- Equalizers**, using balanced amplifier, for telephone-line video-signal link, 275
derivative types, comparison with constant-resistance types, 354
- Exhibitions**, Leipzig Fair, radio and allied equipment shown at, 2593
of sound reproducing equipment, London, 1956, 2609
23rd National Radio, London, 1956, 3595
- Experimental curves**, method of smoothing, 2345, 2676
periodicity of, method of analysing, 2010
- Facsimile**, flat-bed transmitter for, 3545
standard 56 I.R.E. 951 on terminology for, 2889
transmission of weather charts and other material, 2190
- Faraday effect**, on microwaves transmitted through Ge, 1098
in paraffin-ferrite mixtures, 493
in plasma, at 10 kMc/s, 732
in semiconductors, at infrared wavelengths, 1022
- Ferrimagnetic materials**. See Ferrites.
- Ferrimagnetism**, condition for resonance in, 2814
in Mn₂AlCl₃ structure and properties of, 168
in Mn₂N₃ structure and properties of, 3799
theory of, application of Bethe-Weiss method to, 2026
- Ferrites**, anisotropy and magnetostriction of, and effect of heat treatment on, 831
Ba, Sr and Pb, effect of Bi₂O₃ on, 832
in cavity resonators, effect on frequency of, 2658
field distribution in, 347
in circular waveguides, energy-concentrating effects of, 1615
Co, effect of annealing in magnetic field on, neutron-diffraction study of, 3452
magnetic resonance in, 172
Co and Co-Zn, response to heat treatment in magnetic field, 1788
Cu, and Cu chromite, influence of substitutions on quadratic deformation in, 1120
cubic and quadratic crystal forms, magnetic rotatory polarization in, 1792
micrographic study of cubic→quadratic transformation in, 1119
development and properties of, survey of, 830
Fe-Co, uniaxial anisotropy in, 1467
ferrimagnetic resonance of, calculation of field strength for, 185
frequency doubling effect, in crossed magnetic fields, 2138
and mixing in, 3301
Gd ferromagnetic resonance at 9 kMc/s, 183
magnetic properties of, 2821
high-coercive force, obtained by substituting Al ions for Fe ions, 3451
in inductors, survey of, 995
infrared spectra of, 833
- Ferrites, (La, Sr)FeO₂, crystal structure and properties of, 2822
Li, influence of temperature on structure of, 1118
micrographic study of, 3113
magnetic anisotropy of, constants of, 834
frequency dependence of, 835
magnetic resonance in u.h.f. circularly polarized field, 2455
magnetite and Co-substituted magnetite, magnetostriction and permeability of, 494
manufacture of, 192
measurement of microwave dielectric constant and tensor permeability of, cavity-resonator method for, 2846
Mg, complex susceptibility of, new method of plotting, 2137
Mg-Mn, effect of Fe deficiency on properties of, 1468
Fe-deficient, temperature-dependent resistivity of, 3456
Mg-Mn-Al, with ferromagnetic resonance between 160 Mc/s and 1.9 kMc/s, 491
low-magnetic-saturation, properties of, 1136
microwave circuit components using nonreciprocal properties of, 3666
microwave propagation in, nonlinearity of, 1384
in microwave switches, 679
Mn, microwave ferromagnetic resonance in, 1134, 1791
Mn-Zn, initial permeability of, effect of alkali and alkaline-earth ions on, 3121
and grain size, 3122
permeability and magnetostriction of, 3458
reduction of eddy-current losses by adding Ca to, 3457
modulators using, sidebands produced by, 2005
Ni, conductivity and Seebeck-effect measurements on, 173
nickelites and cobaltites, preparation of, by fuson electrolysis, 3461
Ni-Co, crystal anisotropy and ferromagnetic-resonance-line widths of, 3119
Ni-Cu, preparation and properties of, 3809
Ni-Fe, ferromagnetic resonance in, 492
Ni-Zn, frequency dependence of properties of, 3120
sintered, initial permeabilities of, 2136
ordering and antiferromagnetism in, 3454
in paraffin-ferrite mixtures, Faraday effect in, 493
permeability variations in h.f. magnetic field, 1135
with permivar-type hysteresis loops, 489
preparation of specimens for examination of microstructure, 3453
rare-earth, crystal structure of, 2128
crystallographic study relating to, 2820
paramagnetic, temperature variation of susceptibility of, 1789
Sm, dilatometer thermal analysis of, 184
structure of, 1790
in rectangular waveguides, as magnetically controlled couplers, 667
as nonreciprocal attenuators, 3675
single-domain particles of, measurements on, 3455
susceptibility tensor components of, cavity-resonator determination of, 495
unidirectional attenuators using, 1994
wave propagation in, theory of, 2031
in waveguides, for effecting nonreciprocal phase shifts, 2959
propagation in, calculations for, 323
mathematical theory of, 1956
nodes of, 324
theory of, 324
temperature dependence of properties of, 2291
theory of, 20
and devices based on, 2958
for 0.87 and 1.9 cm λ, 1957
yttrium, experimental investigation of magnetic properties of, 3114
Zn, antiferromagnetic transition in, 3800
- Ferroelectric materials**, (See also Piezoelectric materials)
alums, 3404
(Ba, Ca, Sr)TiO₃ systems structural characteristics of, 2084
BaTiO₃, ceramics, anomalous polarization in, 3400
effect of firing cycle on, 1434
effect of mechanical strain on, 2086
electromechanical properties of, 2083
influence of grain size on hysteresis in, 3758
metallographic study of, 2413
effect of partial replacement of Ti by Ge and Si, 1737
electrostriction in, theory of, 1742
etched crystals, replica technique for examination of, 2414
first-order transition in, optical observation of, 452
ion interactions and domain structure of, 139
method of investigation of pyroelectric effect using pulsed illumination, 1745
low-temperature properties of, 454
observations on etched crystals of, 1074
polarization phenomena associated with field strengths of 1 kV/cm in, 2766
polarization reversal in hysteresis loop of, 3759
polycrystalline, domain processes in, 2765
single crystals, investigation of hysteresis in, 1438
neutron analysis of, 1072
surface space-charge layers in, effects of, 3406
temperature variation of absorption of, 453
twinning in, 2085
BaTiO₃-SiO₂ system, phase equilibria in, 1435
BaTiO₃/SrTiO₃ solid solutions, preparation and properties of, 3757
BaTiO₃ and TiO₂, crystal structure of, 2773
Cd, Nb, O₂, specific-heat anomaly at Curie temperature, 449
electrostriction in, survey of, 2088
guanidine aluminium sulphate hexahydrate, 3403
experimental study of, 2415

- Ferroelectric materials**, guanidine vanadium sulphate hexahydrate, 2772
 KNbO₃, experimental investigation of, 2412
 Moscow conference on piezoelectricity, 2770
 niobates of Na and Cd, experimental investigation of structure and properties of, 2087
 structure and phase transitions of, 3401
 niobates and tantalates of divalent metals, 3402
 as nonlinear coupling medium for modulator, 3671
 PbTiO₃, X ray and neutron diffraction study of, 2771
 X ray study of, 786
 phosphates and arsenates, anomalous variations of dielectric constant at low temperature in, 1738
 with pseudo-cubic structure, thermodynamic treatment of, 1744
 Rochelle salt, Barkhausen pulses in, 2774
 effect of exposure to radioactive irradiation on, 143
 electrical after-effects in, 1743
 stannate solid solutions, experimental investigation of, 3405
 survey and theory of, 785
- Ferromagnetic materials**, (See also Ferrites; Magnetic properties)
 α -Fe₂O₃, microwave resonance in, 486, 2132
 alloys, alnico, domain structure of, 176
 high-coercivity, demonstration of domains in, 3805
 alnico 5, effect of precipitation-particle shape on coercive force of, 825
 anisotropy constant of, 481
 anisotropy induced by magnetic annealing in, 177
 armco iron, Hall effect in, 2819
 velocity of ultrasonic waves in, 1131
 in Au-Mn system, 2450
 Bi-Mn and Si-Fe, domain patterns on, interpretation of, 3116
 Co-Ni cubic solid solutions, domain structure of, 3802
 Cu-Co, influence of magnetic field during precipitation, 1782
 Cu-Ni, temperature dependence of Hall coefficient in, 3801
 dependence of characteristics on lamination thickness in, 1133
 Fe-Al, for magnetostrictive transducers, 3118
 Fe-Ni, powder compacts, effects of sintering process on, 178
 wires under tension, magnetization-reversal centres in, 179
 Hall effect in, theory of, 3117
 h.f.-resistance method for metallurgical investigation of, 1504
 high-coercivity, thermal effects associated with magnetization of, 1130
 MnBi, investigation of transitions in, 171
 Ni-Fe, ΔE and δE effects in, 1785
 films, domain structure in, 1132
 loss of texture at thickness < 1 mil, 483
 mechanical damping in, 1783
 permalloys, Hall effect in, 487
 permanent-magnet, alcomex, 2135
 production of square hysteresis loop by pressure, 828
 Si-Fe, domain formation on reverse magnetization in, 1464
 domain nucleation in, 2452
 magnetization curves and domain structure of, 3450
 single crystals, magnetic hardness for different crystallographic directions in, 2129
 structure of, powder-pattern investigation of, 824
 Si steel, domain configurations and crystallographic orientation in, 169
 anisotropy induced by annealing in, 1459
 Barkhausen effect in, 1685
 Co, smallest size of domains in, 484
 Co particles coated with CoO, exchange anisotropy in, 3803
 coercive force in, theory of, 1124
 associated with development of tubular domains in cyanides of 3d transition-group elements, 3804
 domain-boundary displacements in, network-analogy analysis for, 1127
 domains in, depiction by secondary-emission microscope and other methods, 1793
 dry-powder method for demonstrating, 1121
 theory and demonstrations of, 1780
 use of electron mirrors for observation of, 1794
 'double-exchange' interaction in, calculations of, 1117
 effect of compression on, 3115
 elongated Fe particles, for permanent magnets, 826
 elongated single-domain particles, effect of shape on coercive force of, 1460
 theoretical explanation of, 1461
 erbium, low-temperature measurements on, 1787
 Fe, dispersion due to domain-wall movements in, 3448
 effect of nitride additions on coercive force of, 482
 energy-band structure of, 174
 permeability near ferromagnetic resonance of, theory and measurement of, 2134
 thermodynamic functions of, 3807
 Fe and Fe alloys, influence of free carbon on properties of, 1463
 galvanomagnetic effects in, 2133
 γ -Fe₂O₃, magnetic saturation and structure of, 2451
 Hall effect and spontaneous magnetization of, 1784
 hysteresis coefficient and permeability of, relation between, 3123
 hysteresis loop of, review of research on, 498
 magnetite, specific heat of, 3806
 single crystals, magnetization at temperatures near Curie point, 3449
 magnetite and sesquioxide of α -iron, demagnetization by alternating fields, 2130
 magnetization curves of, representation by simple mathematical functions of, 3459
- Ferromagnetic materials, irreversible after-effect in**, 1123
 laminations, effect of compression on, 182
 magnetic moment of, theory of, 1779
 magnetic viscosity in, influence of specimen dimensions on, 728
 magnetostatic theory for, 83
 magnetothermal effect in, reversible and irreversible components of, 823
 measurement method for small samples, 3143
 metals, Nernst effect in, theory of, 94
 relaxation and gyromagnetic properties of, 2817
 Ni, effect of demagnetization method on magnetization of, 2131
 magnetostriction constants of, calculation of, 1137
 single crystals, low-temperature resonance-absorption study of, 2818
 residual magnetization and magnetostriction of, 1786
 wire, position of poles in, influence of stresses and texture on, 1466
 Ni and Ni alloys, microwave resonance investigations of, 829
 Ni and Ni-Cu alloys, magnetic anisotropy energy of, 2453
 NiO, colloidal, magnetic-susceptibility measurements on, 3798
 permanent-magnet, coercive force and irreversible after-effect in, 2823
 perovskite-type compounds containing Mn, neutron diffraction study of, 1114
 theory of semicovalent exchange applied to, 1115
 photoelectric emission from, 1059
 powders, effect of particle interaction on coercive force, 827
 Fe, for permanent magnets, preparation of, 1478
 Fe-oxide, dependence of coercive force on particle size and shape, 170
 of haematite (α -Fe₂O₃), remanent magnetization of, 1129
 comprising particles of different sizes, coercive force of, 1128
 remanence characteristics of, 496
 reversible permeability of, application to frequency modulators, 1469
 review of recent research on, 2456
 spontaneous Hall effect in, 1465
 tapes, with square hysteresis loops, domain formation on flux reversal in, 1125, 1126
 thin films, evaporation technique for, 181
 thin layers, energy of Bloch walls in, 180
 for waveguides, attenuation and permeability of, 2288
- Ferromagnetism**, anisotropy in cubic crystals, temperature dependence of, 1686
 in CoTe, experimental investigation of, 488
 interpretation of results of, 3808
 dipolar, at 0°K, 397
 hysteresis losses in rotating magnetic field, 499
 in NiO, induced by addition of Li ions, 2454
 of noble metals with Mn, 175
 and para- and ferri-magnetism, theory of, 3797
 quantum theory of, 727
 research at Ferrara University, 2362
 spin-deviation theory of, 1368, 2025
 theory of, based on fluctuating-field model, 1462
 thermodynamic, 3696
 in transition metals, theory of, 1369
- Field strength**, (See also Reception; Wave propagation, e.m.)
 measurement of, at microwave frequencies, by spinning-rod perturbation method, 519
 waveguide probe for, 2170
 recording instrument for, 2853
 measuring set comprising double-heterodyne receiver for, 2525
 plotting, using rubber-membrane and resistance-paper models, 1492
 v.h.f./u.h.f. receiver for recording, 3528
- Films**, thin, adsorbed, removal of, by electric field, 3330
 Ag, evaporated, effect of e.s. charge on conductivity of, 3763
 Al₂O₃, transmission of electrons through, 1365
 Au, conductivity and optical transmission of, 836
 Cu₂O, observed by electron diffraction after cathode sputtering, 3125
 surface structure and contact potential difference of, 3106
 Cu-Be alloy, evaporated, relation between thickness and structure of, 2458
 dielectric, electron-bombardment effects in, 1778
 ferromagnetic evaporation technique for, 181
 international colloquium April 1955 on, papers presented at, 3124
 metal, anisotropic, conductivity of, 3084
 electrical constants of, 2418
 Ni-Fe, domain structure in, 1132
 PbS, effect of oxygen on photoconduction in, 3751
 resistivity of, 3762
 TiN and TiC, semiconductor properties of, 2447
- Filters**, (See also Networks)
 active, RC, design of, 2662
 with RC feedback loop, design data for, 1329
 a.f., with electronically controlled cut-off characteristics, 352
 band-pass, a.f., high-Q, using negative-feedback amplifier, 49
 using crystals in stagger-tuned circuits, for range 400 kc/s-5 Mc/s, 693
 design technique based on insertion-loss method and frequency transformation, 3299
 with low asymmetry, design of, 1992
 multiplexing, directional-coupler type for 225-400 Mc/s, 353
 band-stop, using crystals, parallel-circuit design for, 3674
 by-pass, 3-terminal-pair, 3673
 diplexing, for u.h.f. communication systems, 2332

- Filters, directional, combining, waveguide, transmission-line and lumped-constant constructions for, 3297
 electromechanical, 100-kc/s torsional type, 1002
 high-pass, lattice, crystal, 48
 ladder, theory based on Foster's reactance theorem for, 1328
 l.f., high-pass, RC, associated with feedback amplifiers, 2663
 low-pass, approximate analysis based on potential-analogue method, 1001
 design chart for, 1646
 for eliminating transmitter harmonics in television band I, 47
 ladder, design data for, 3296
 for metre waves, 3298
 RC, synthesis of, 2993
 using stacked-disk feed-through capacitors, 2323
 microwave, using circular waveguide with radial-line cavities, 1330
 polarization, using artificial crystals, 1299
 waveguide, design of, 1645
 using dielectric $\lambda/4$ transformers, 1991
 with periodic structure, theory based on characteristic reflection and transmission factors for, 46
 power-law and Techebycheff types, of order up to $n=5$, catalogue of, 351
 RC, with single-component frequency control, 2661
 for recovering periodically sampled data, design of, 1331
 rejector, bifilar-T, for television receiver, 1993, (D)2664
 v.h.f., transmission-line, calculation of T stubs for, 1332
- Fluctuations.** (See also Noise)
 amplitude and phase, in oscillators, 1996
 electrical, effect on oscillators of, 55
 of klystron oscillation frequency, 1997
 quantum theory of, 1350
 radio problems involving, statistical treatment of, 1925
- Fluxmeters.** See Meters.
- Frequency,** allocations, for Europe, suggested new plan for, 909
 control, automatic, using cut-off junction diode, 3207
 of radio equipment, stabilidyne, 2644
 conversion, as basis for studio sound effects, 2948
 use of positive nonlinear resistors for, 2978
 converters, using $n-p$ -junction diodes, 3897
 dividers, (See also Circuits, counter)
 large-ratio, using secondary-emission valve, 3003
 using saturable reactors, 359
 for time-signal generator, using decade counter tubes, 1657
 doubling and mixing in ferrites, 3331
 measurement of, for bevatron, 2483
 using high-speed counter with transfer oscillator and frequency converter, 524
 meter, cavity-resonator type, high-precision, 219
 heterodyne-type, for 10 kc/s-1 kMc/s, 1497
 for lower a.f. range, based on hyperbolic waveform, 1828
 microwave, wide-band, based on paramagnetic resonance, 1496
 phase-bridge type, 2176
 recording-type, 'frequency microscope', 3493
 switched-capacitor type using transistor switch, 3494
 multiplier, based on c.r. tube with profiled target, 61
 klystron, design and performance of, 2915
 using two-beam klystron, 1255
 stabilization, by waveguides operated near cut-off, 2619
 stabilizer, for reflex klystron, 58
 standards, microwave, using double-modulated klystron, 1806
 proposed unit independent of second for, 1481
 and time standards, fundamental requirements for, 3823
- Galvanomagnetic effects,** in Bi, 2141
 effect of admixtures on, 1472
 in ferromagnetic conductors, 2133
 in metals in strong fields, 3038
- Galvanometers,** screened, very-high-sensitivity, 1160
 string-type, direct-recording, extended-frequency-range, 3831
- Gases,** ionized, (See also Plasma)
 hydromagnetic wave motion in, 91
 in magnetic field, use of Boltzmann equation for studying, 2692
 molecular, determination of first Townsend coefficient for, 395
 permittivity of, resonant-cavity measurements of, 80
 2-component, collision processes and oscillations in, 3345
 rare, impurities in, analysis technique using microwave excitation, 3349
- Generators,** (See also Oscillators; Signal generators; Ultrasonics)
 e.s., charged-belt, for particle accelerators, 1838
 Van de Graaff, with liquid charge carrier, 915
 pulse, using mercury selector switch, 3291
 using saturable reactors, for radar modulators, 36
 for time marking, 864
- Geomagnetic storms,** correlation with solar phenomena and cosmic-ray storms, 1708
 sky-brightness changes associated with, 744
 statistical analysis of sudden commencements at Huancayo, 415
 with sudden commencements, distribution of preliminary reverse impulse of, 106
- Geomagnetism,** activity, index of, correlation with F_2 -layer critical frequencies of, 3380
 periodic variations of, correlation with sunspot variations, 2720
 variations of, at Kerguelen and Heard Island, 103
 and solar M regions, 3364
 27-day recurrence tendency in, and cosmic-ray intensity variations, 1045
- Geomagnetism, dynamo theory of,** 1401, 3348
 earth's crust as seat of, 2719
 far-field geomagnetic equator, cosmic-ray criteria for determining, 3721
 field coordinates, derivation from cosmic-ray observations, 2371
 field disturbances, at a.f., and conductivity of ionosphere, 1718
 origin of, 3061
 correlation with variations of F_2 -layer critical frequencies, 117
 and F_2 -layer disturbances, 1720
 relation to solar coronal activity of, 2042
 and solar prominences, 1399
 field pulsations, elimination of slow variations in recording of, 1402
 field variations, diurnal, variations in strength of dynamo wind system for, 2373
 in range 1-150 c/s, observations at Oregon of, 3062
 during solar eclipse, 107, 416, 1716, 3722
 measurements in Japan of, 2045
 due to solar flares, 423, (D)3376
 fluctuations in, diurnal and seasonal variations of, 1403
 isomagnetic charts, adjustment of, 2372
 measurement by nuclear-induction method, 414
 S_q field in polar region, 2044
- Geophysical prospecting,** using e.m. waves, 3839
 use of ultrasonics in, theory of, 1501
 for water, using e.m. interference principle, 1171, (D)3157
- Geophysics,** e.m. induction in two-layer earth, 413
 gravitational influence of Jupiter, 3040
 investigations by means of earth satellites during I.G.Y. 1957-1958, 2718
- Glass.** See Insulating materials, glass.
- Ground,** electrical constants of, influence of temperature and humidity on, 102
- Hall effect,** in alloys, 2457
 in amorphous iron, 2819
 application to microwave power measurement, 1488
 in Bi, dependence on pressure of, 500
 in ferromagnetic materials, spontaneous component of, 1465
 in ionic semiconductors, theory of, 1757
 in metals, frequency variation of, 1039
 in permalloys, 487
 in porous media, formulae for, 3761
 review of theory and applications, 95
 in semiconductors, measurement of temperature variation of, 3155
 in Zn, anisotropy of, and change of resistance in magnetic field, 3408
- Headphones,** earmuffs for, design and testing of, 1297
- Hearing,** detection of signals in noise, comparison between human and electronic systems for, 3009
 effect of listener's training on intelligibility, 1290
 intelligibility of competing messages, 1288
 effect of relative level variation on, 3606
 improvements effected by delay technique, 1287
 intelligibility problems in speech communication, symposium on, 3608
 location of sound sources, experiments on, 649
 masking threshold in, effect of duration of masking stimulus on, 3610
 masking of tones by bands of noise, 3611
 parameters affecting pitch of amplitude-modulated tones, 7
 selective response to one of two simultaneous differentially filtered messages, 650
 sensitivity to changes in interruption rate of white noise, 1943
 threshold of, and thermal noise, 2604
- Hearing aids,** Japanese, using transistors, 3204
- Heating,** h.f., dielectric, investigation of field in, 3843
 generators for, using Brown Boveri transmitting and rectifying valves, 1174
- Horns,** hyperbolic-function, impedance-transformations for, uses of Smith chart for, 658
 natural frequencies of, 1608
- Hysteresis,** domain-model representation of, new general approach to, 1351
 simplification of calculations by substitution of ellipse for loop, 2346
- Image converters,** as digital-computer storage elements, 3289
 electron-acoustic, using $BaTiO_3$ screen, 2184
 electron-optical study of, large-area electron sources for, 3173
 resolving power of, 1918
 scanning type, for measurement of very short time intervals, 3502
- Image intensifiers,** solid-state, using photoconductive and electro-luminescent layers, 932, 933, 1897
 switching applications of, 931
 photoelectric/fluorescent, realizable light gain in, 871
 for X-ray cineröntgenography, 3174
 for X rays, 2510
- Impedance,** (See also Transmission lines)
 acoustic, measurement method based on difference of sound pressures, 1942
 Smith chart for determination of, 1286
 tube method for measurement of, theory of, 2941
 acoustic and electrical, measuring system for, 3149
 calculation for parallel-connected impedances, 991
 fundamental properties of, analysis based on 'p world' for, 2309
 measurement of, using long transmission line, 1158

- Impedance, measurement of, microwave, correction for line losses in, 206
 mismatching of, influence on power transfer of, 1985
 negative, feedback-amplifier arrangement for realizing, 63
 nonlinear, parallel-connected, equivalent single impedance for, 1974
 of waveguide components, measurement method using automatic
 plotter for, 1822
- Inductance**, formulae for computing, 1318
 mutual, standard of, for Canada, 1830, primary-winding effects in,
 1831
 standards of, stability of, effect of humidity on, 2472
 r.f. calibration of, N.P.L. practice for, 3134
- Inductors**. See Coils.
- Information theory**, (See also Communication theory)
 London conference in 1955 on, 260
 terminology and notation in, 2530
- Instruments**, calibration of, power supply for, 1554
- Insulating materials**, (See also Dielectric properties; Ferroelectric
 materials)
 BaTiO₃ with antimonate additions, 3815
 BaTiO₃-SiO₂ system, phase equilibria in, 1435
 ceramics, BaTiO₃-PbZrO₃ solid solutions, X ray investigation of,
 1436
 boron nitride, physical properties of, 2462
 survey of, 501
 in system MgO-CaO-SnO₂-TiO₂, experimental investigation of,
 191
 titania-niobia and zirconia-niobia, phase equilibrium relations
 in, 844
 vitreous ternary lead silicates, resistivity of, 2827
 chemical interaction between impurities in, 3409
 crystals, with electron-bombardment-induced conductivity, effect
 of metal electrodes used, 843
 effects of particle irradiation on, 3814
 field-dependent conductivity and breakdown in, 72
 glass, determination of resistance of, 521
 dielectric losses and polarizability of colour centres in, 2768
 low-melting-point, for 'soldering' ordinary glasses, 3462
 paramagnetic resonance absorption in, 502
 resistivity of, 3129
 and silica compounds, effect of u.v. and X-ray irradiation on,
 3460
 hexane, experimental investigation of conduction and breakdown
 in, 846
 mica, noise at pre-breakdown current in, 845
 X ray studies of some Indian species of, 3816
 paper, acetylated, review of properties of, 1144
 dielectric properties of, measurement at 9.35 kMc/s of, 3140
 plastics, electron-irradiated polyethylene, production and properties
 of, 2464
 e.s. charges in, 2684
 mechanical properties of, 1145
 survey of, 2828
 polychloronaphthalene, as impregnant for capacitor paper dielectric,
 2980
 polymeric, noise in, experimental investigation of, 3817
 polythene, irradiated, electric strength of, 1146
 polyvinyl acetate, experimental investigation of, 1477
 silicones, properties and applications of, 1476
 solid, breakdown in divergent fields, 189
 microwave dielectric properties of, temperature dependence of,
 measurement of, 3139
 synthetic, formation of creep paths in, 142
 resins, for embedding electronic equipment, 2829
 vitreous silicates, structure revealed by X rays in, 190
- Interference**, adjacent-channel, in f.m. reception, analysis for, 3203
 in radiotelegraphy, influence of signal waveform on, 2522
 due to atmospherics, diurnal and seasonal variations of level of, 3868
 in 3-Mc/s band, 1202
 in 5-Mc/s band at Poona, 905
 due to corona on h.v. lines, equipment for measurement of, 3488
 elimination by parallel-connected receiver, 3206
 from f.m. receivers, measurements of, 3826
 in high-frequency diffusion on overhead lines, by long-wave
 transmissions, 3877
 impulsive, in narrow-band f.m. receivers, filter requirements for
 minimizing, 2523
 protection ratios as function of transmitter-frequency separation,
 1863
 radio, measurement methods and limits in Germany and other
 countries, 2528
 in radio reception, in aircraft, suppression methods for, 1539
 from fluorescent lighting systems, 3209
 in radio and television, survey of with reference to work of British
 Post Office, 3867
 from radio and television receivers, I.R.E. standard on methods of
 measurement of, 3531
 r.f., from 380-kV installations, 2212
 screen-room method for measurements on, 3471
 suppression of, British Standards Code of Practice on, 906
 from television receivers, measurements in Italy on, 2237
 in television reception, on band III, from band-I signals, 2894
 causes and cures for, 2899
 from television timebase circuits, transistor set for measuring, 1537
 from unwanted signals, effect of system selectivity curves on, 2222
- Interferometers**, acoustic, fixed-path, for 600-800 kc/s, 1285
 microwave, for measurements of target speed and distance, 533
 for visual astronomy, based on principles of radio interferometer,
 1666
- International Geophysical Year**, symposium on U.S. earth-satellite
 program for, 2718
- Ionization**, and dissociation, of complex molecules by electron impact,
 2019
 by relativistic particles, survey of, 2018
- Ionized media**, atomic nitrogen, ultraviolet absorption of, 2013
 dynamics of, theory of, 2361
 fluids, compressible, oscillations of, 721
 hydromagnetic flow of, analysis for, 723
 hydromagnetic stability in, 722
 positive column, travelling density waves in, 714
 turbulent, scattering of e.m. waves in, 1373
- Ionosphere**, (See also Atmosphere; Wave propagation, e.m.)
 absorption in, measurements at Dakar on, 3513
 measurements at Royal Netherlands Meteorological Institute
 (K.N.M.I.) of, 3054
 of medium and short waves, relative contribution of D and
 E layers to, 2048
 observations of, during disturbed periods, 1411
 at equatorial stations, 3855
 studies on, perturbing influence of focusing effects in, 1417
 variations of, measured at different stations, 1051
 of 150-kc/s waves, lunar semidiurnal oscillation in, 116
 during annular solar eclipse 25th Dec. 1954 at Grahamstown, 2061
 characteristics recorded at Rome, March 1949-April 1953, 3047
 conductivity of, and geomagnetic disturbances at a.f., 1718
 convective instability in, influence of magnetic field on, 3371
 D layer, effect of Lyman-line emission from aurora on, 3384
 observations during solar eclipse 30th June 1954 on, 2062
 D and E layers, formation mechanism of, 1407
 model deduced from absorption considerations, 2194
 disturbances in, and geomagnetic activity, 103
 drifts in, measurements in Japan of, 3730
 spaced-receiver measurements on, 3200
 symposium at New Delhi, July 1955 on, 3045
 E region, auroral ionization, and luminosity, 119
 coupling region of, fading of echoes from, 2520
 critical frequency, night-time measurements of, 1408
 distortion due to electrical currents in, 752
 effect of solar eclipse on, 1716
 electron-density distribution in, influence of S₀ current system
 on, 2049
 electron production and recombination during solar eclipse, 753
 ion composition of, night-time rocket measurements of, 1409
 irregularities in, movements of, 2051
 recombination coefficient of, determination from solar-eclipse
 data of, 3378
 recombination during aurorae in, 1413
 winds in, 418
 E and F₁ layers, anomalous variations in, 2053
 investigation of solar sources controlling, 412
 E₂ layer, observations of, at Ahmedabad, 3373
 at Calcutta, 112
 E₂ layer, echoes, relation to aurora of, 2390
 frequency characteristics of, 2730
 lunar tidal variations in, 1717
 movement of patches in, determination of velocity of, 1710
 observations at Ahmedabad of, 3048
 'sequential' type, analysis of observations of, 2052
 survey of irregular and regular variations in, 2379
 variations during solar eclipses, 115
 winds in, 118
 echo-sounding technique for, oblique-incidence variable-frequency,
 1414
 effect of solar eclipse, 25th Feb. 1952, 3377
 30th June 1954, observations at Rome of, 3732
 effect of solar flares on, 423, (D)3376
 electron-density distribution in, calculations taking account of
 earth's curvature for, 3727
 calculation from propagation data over a frequency range, 3382
 electron-density profiles, method for obtaining from P'f records,
 2381
 electron distribution in, 2722
 simplified method of determining, 2378
 F region, ambipolar diffusion in, 3729
 collision frequency in, determinations at Calcutta, 1711, 2056
 disturbances and viscosity in, 1410
 electron content and parameters of, over Ahmedabad, 2055
 electron-density in, variations during ionospheric storms, 2057
 electron production and loss in, 2724
 formation of and splitting in, 2725
 position of spread-F equator, 3374
 recombination, and attachment in during solar eclipse, 3733
 and ion production in, 113
 spread echoes from, correlation with radio-star scintillations of,
 2731
 observations in Japan on, 1713
 theories of formation of, 750
 travelling disturbances in, electron-resonance interpretation
 of, 3372
 variations of height of maximum ionization in, 420
 F₁ layer, geomagnetic control of, 421
 temperature/height model based on C.R.P.L. f_o records, 2054
 F₂ layer, correlation between critical frequency and sunspot
 number, 2059
 critical-frequency variations, correlation with geomagnetic distur-
 bances, 117, 3380
 correlation with sunspot cycle and latitude, 3052

- Ionosphere, F₂ layer, distortion at magnetic equator, 424**
 disturbances in, and geomagnetic disturbances, 1720
 associated with magnetic storms, 426
 diurnal variations in, at magnetic equator, 2064
 electron-density variations in, correlation with night air-glow of, 1714
 height distribution of electrons on magnetically quiet days in, 2726
 influence of diffusion on ionization distribution in, 751, 1712, 2727
 longitude effect and geomagnetic control in, 3051
 lunar/solar variations observed at Ibadan, 3731
 mechanism of electron removal in, 114
 structure deduced from diurnal variations in, 3050
 theory of formation of, 3049
 variations of height of maximum electron density in, 419
 wave disturbances and hydromagnetic effects in, 111
- geomagnetic distortion in, 425**
 height measurements of, high-accuracy, using recording sounder, 3046
 ionization density of, estimated from observations of 'nose' whistlers, 2393
 irregularities in, determination of height of, 1415
 effect of anisometric amplitude patterns on determination of, 120
 movements of, 2519
 observation of radio-star scintillations for investigation of, 2058
 shape of, 121
 layer formation in, influence of S₀ current system on, 1049
 lower, night-time model deduced from coupling phenomena at 150 kc/s, 1050
 lunar variations in, 2733
 meteoric E layer, observations of, 2871
 molecular concentration in, wave-interaction method for determination of, 2197
 movements in, analysis of, diffraction-pattern technique for, 2050
 Royal Astronomical Society discussion on, 1709
 due to solar heating, 1048
 observations at North Pole made from aircraft, 2382
 photoionization of, theory for nonisothermal atmosphere, 749
 physics of, conference on, text of papers presented at, 755
 polarization of echoes from, 2384
 review for 1955, 1419
 Russian terms relating to, selected list of, 1715
 and scintillations of radio stars at 50 Mc/s, 422
 self-interaction of waves in, precautions for experimental study of, 2198
 during solar eclipse, 20th June 1955, observations in India of, 2732
 25th Feb. 1952, interpretation of observations of, 1412, 3378
 30th June 1954, observations in Norway of, 3379
 and solar eclipses, symposium on, 742
 sounding equipment, using delayed-coincidence method, 754
 giving direct record of m.u.f., 2729
 structure of, in investigation by oblique-incidence pulse transmissions, 1850
 temperature in, and cooling after sunset, 1406
 distribution of, 2380
 tilts in, observations in New Zealand on, 2723
 during solar eclipse 30th June 1954 at Slough, 2060
 Tortosa sounding station, inauguration of, 3735
 transient echoes from, effect of rate of occurrence of meteors on, 2713
 travelling ripples in, selective fading due to, 3863
 turbulence in, influence of geomagnetic field on, 2063
 winds in, effect of positive solar particles on, 2734
 space-receiver fading observations of, 2728
 spaced-receiver methods of investigating, 1418
 velocity determination from fading records, 2387, 2388
- Z propagation hole in, 2195**
- Ions, detection of, using Si rectifier, 2181**
 and electrons, collective description of interactions of, 384
 negative, H and O, photodetachment cross-section of, 396
 in nonuniform field, mobility and space charge of, 3335
 penetration on bombardment of Al, 1676
- Lamps, arc, xenon, suitability for television studios of, 2238**
 cathodoluminescent, with high-conductivity phosphor screens, 3756
 r.f.-excited, 1837
- Length, and time, units of, definition of, 2834**
- Lenses, (See also Aerials; Electron lenses)**
 acoustic directional properties of, 315
 microwave, dielectric, design data for, 2964
 matching sections for, 2293
 numerical design of, 2298
 slotted-dielectric matching section for, 3652
 of stacked perforated plates, 1628
- Light, correlation of photons in coherent beams of, 1666**
 interference between independent sources, 710
 scattering by inhomogeneous solid, theory of, 1353
 velocity of, determination of, band-spectrum method for, 1352
 by infrared-spectroscopy method, 69
- Lightning, flash counters, design of type responding to e.s. field component only, 2069**
- Loudspeakers, (See also Public-address systems; Sound)**
 cone-type, miniature, reduced-depth construction for, 2277
 corona-wind, with ring control electrode, 659
 directivity factor of, measurement of, 2950
- Loudspeakers, e.s. semicylindrical with thin polyester diaphragm, 316**
 2-diaphragm, 3627
 for 8-16 kc/s, 1298
 for producing sound pulses for acoustic measurements, 3267
 spherical systems, polar and frequency characteristics of, 1948
 twin-cone, for frequencies up to 18 kc/s, 12
 use of acoustic lenses in, 315
- Luminescence, (See also Electroluminescence; Phosphors)**
 cathodoluminescence, review of recent research on, 779
 decay of, measurement of light quanta in, 1804
 of Si p-n junction at breakdown voltage, 1088
 symposium on, Minsk, 1955, 2679
- Lunar radiation, r.f., at 1.5 mm λ , observations of, 1704**
- Magnetic field, calculation method based on scalar magnetic potential inside currents, 1682**
 of circular conductor, analysis using elliptic integrals for, 1033
 effect on current in conducting fluid, 722
 effect on motion of conducting sphere in conducting fluid, 3352
 effect on resistance of Fe-Ni alloys, 1777
 of ferromagnetic materials, use of Hall generator for measurements on, 3481
 galvanic effects of, origin of modes of description of, 383
 intense, pulsed, production and applications of, 3030
 measurement of, differential-capacitance probe for, 1817
 using overdamped galvanometer as partial fluxmeter, 2487
 search coil giving fourth-order terms for, 2486
 survey of methods for, 2162, 2485
 of parallel magnetic conductors, and associated mechanical forces, 3347
 scalar potential of line current in, curvilinear integral expression for, 1683
 of thin cylindrical coil, theory of, 3699
 uniform, design of coils for, 2695
 in vicinity of solar system, effect on particle trajectories of, 737
- Magnetic properties, of colloidal NiO, 3798**
 of microscopic particles, torsion balance for measurement of, 2155
 of Mn₂AlC, 168
 of Mn₂N, 3799
 of MnTe, 2812
 of NiTe, 2813
 of sesquioxides of transition elements, 3447
 structure of α and β Mn, 2127
- Magnetic resonance. See Resonance.**
- Magnetism, at low temperatures, conference at Khar'kov, 1954, 822**
 paramagnetic relaxation, theory of, 1031
 theory of magnetic masses, 81
- Magnetization, balance for measurements at temperatures down to 1.4° K, 3144**
 curves, survey of methods of obtaining, 212
 of cylinder, by means of coil, theory taking account of magnetic after-effects, 3697
- Magnetohydrodynamics, application to analysis of cosmic magnetic fields of, 3355**
 Royal Society discussion on, text of papers at, 1687
- Magnetometer, airborne, N.O.L. Type-2A, 104**
 astatic, for measurements on ferromagnetic sheet, 213
 electronic, c.r.-tube with e.s. beam balancing, 852
 recording, for geomagnetic variations at one place, 105
 vibrating-coil, for measurements on small samples, 3483
- Magnetoresistance, of Zn, anisotropy in magnetic field of, 3408**
- Magnetostatics, theory of, application of transformation of line integral into surface integral, 82**
 for ferromagnetic materials, 83
- Magnetostriction, in alfenol, experimental investigation of, 2825**
 association with superconductivity of, 1041
 and magnetomechanical effects, survey of, 2142
 of Ni single crystals, theory of, 1473
 quantum theory of, 1040
 use of Wiedemann effect in electromechanical quadripole, 350
- Magnets, (See also Ferromagnetic materials)**
 bar, distance between poles of, calculation of, 1684
 iron-powder compacts, investigation of properties of, 1781
 permanent, aging of, apparatus for investigating, 1816
 for microwave valves, 1254
- Mathematics, analysis of non-Markovian stochastic processes, 196**
 asymptotic expansions of solutions of wave equation ($\nabla^2 + k^2$)
 $u = 0$, 398
 calculation, of roots of equations, 2148
 of time functions for broken rational transform functions, 1151
 Cauchy's problem for hyperbolic equations, and differentiability of solutions of elliptic equations, 1801
 complex correlation coefficient, simple interpretation of, 2832
 confluent hypergeometric functions, 507
 cubic equation, method of solving, 194
 differential equations, linear, second-order, asymptotic solution in domain containing one transition point, 3131
 of field theory, classification of, 3820
 nonlinear, for synchronization of oscillations, 3464
 almost-periodic solutions of, 1480
 use of relaxation methods in conjunction with computers for solving, 3821
 error function of complex argument, transformation method for, 2467
 formulae for inverse-osculatory interpolation, 2154
 Fourier series corresponding to analytical function, convergence and summation of, 195

- Mathematics**, Fredholm integral equations, methods for solving, 1802
 harmonic analysis and synthesis, simplified procedure for, 3463
 integral equations, Trauter's problem on, new solution of, 3465
 integration of nonlinear integral equation for Laplace function, 2468
 inverse Laplace transforms expressed as Neumann series, 3819
 Laguerre polynomials, short table of, 2465
 Laplace transformation, elementary explanation of, 1798
 matrix representation of complex vectors, 847
 method of stationary phase, 2466
 methods of obtaining least-squares lines, 2469
 Mikusiński's operational calculus, 1800
 orthogonal polynomials with orthogonal derivatives, 2150
 partial-difference equations for potential distribution, 1019
 periodic solutions of Duffing's equation with damping, 2153
 probability distribution of constant vector plus Rayleigh-distributed vector, 197
 reduction of hypergeometric functions in noise theory to tabulated functions, 509
 simultaneous equations, solution by matrix iteration, 1799
 solution of linear second-order differential equations, method of comparison equations (generalized W.K.B. method) for, 2831
 solution of quartic equations, 506
 solutions of equations involving power-series expansions, 505
 stationary random functions in frequency-change problems, 3467
 statistical techniques in reliability studies, 1803
 tables of $\int_0^x J_0(t)dt$ for large x , 2152
 Tchebycheff polynomials, 2830
 transformations of Fourier and Laplace types, 2149
 vectors, matrices and tensors, introduction to, 1150
 wave equation, round-off errors in implicit-finite-difference methods for, 3466
- Measurements**, (See also individual subjects)
 apparatus for transmission characteristics of v.h.f. frequency-multiplex systems, 217
 correcting for running means by successive substitutions, 706
 correction for instrumental bandwidth in, 66
 of linearity, c.r.o. method for, 3478
 on magnetic particles, torsion balance for, 2155
 microwave, technique of, review of, 3470
 of power, power factor, voltage or current, use of push-pull cathode-follower circuit for, 2488
 of wavelength, interferometer method for mm- λ region, 1827
- Metals**, (See also Conduction; Ferromagnetic materials; Magnetic properties)
 Bi, cyclotron resonance and energy-band structure in, 2140
 microwave cyclotron absorption in, 1471
 conduction electrons in, magnetic properties of, 1021
 conduction and photoemission of, effect of adsorbed gas on, 1672
 conductivity of, dependence on surface charges of, 2421
 influence of relaxation fluctuations on, 2090
 theory of, 1020
 Cu, conductivity of, effect of lattice imperfections on, 790
 thermoelectric power of, effect of lattice imperfections on, 1112
 effects of particle and γ radiation on, 2034
 Ga, electrical anisotropy near fusion point, 837
 sub-group-B metal compounds with, 187
 Hall effect in, frequency variation of, 1039
 In, alloys of, review of research on, 188
 interdiffusion of, optical investigation of, 1391
 irradiation effects in, survey of, 457
 microwave resonance in, 186
 resistance of, at high current densities, 456
 surface impedance of, at infrared frequencies, 1076
 Th, high-purity, preparation of, 2144
 Ti, applications in electroacoustic equipment in Japan, 3810
 tin, resistance at 7.3×10^{10} c/s in superconducting state, 1776
 transport properties of, kinetic-theory derivation of, 2420
 Zn, thin films of, crystal structure of, 2459
 zone melting technique using electron bombardment, 2147
- Meteors**, distribution of magnitudes and masses of, radio-echo determinations, of, 2037
 ionization trails of, wave propagation via, 3509
 rate of occurrence of, time of diurnal maxima of, 2713
 shower, detected by forward scattering of radio waves, variations in numbers of, 738, 1046
 radar survey of southern hemisphere, 739
 showers associated with Giacobinid comet, radar observations of, 410
 trail echoes, diffusion effects in, 3717
 duration of, correlation with visual magnitudes of, 2039
 duration and height of, 2040
 ionospheric effects on, 3519
 polarization effects in, 2038
 radar observations of, influence of noise on, 99
 trail ionization, conditions and origins of, 409
 use for Janet communication system, 3533
 trails, diffusion coefficients in, 100
 light radiation from, mechanism of production of, 3362
 reflection of v.h.f. waves from, 2516
 velocities of, radio methods for determining, 3716
- Meters**, ammeter, zero-resistance, self-balancing, for corrosion-cell measurements, 2168
 flutter, f.m.-receiver type, 13
 fluxmeter, nuclear-resonance type, 3480
 photoelectric, detailed description and analysis of, 2163
- Meters**, megohmmeter, valve-type, logarithmic, 3152
 multipurpose, using modified cathode follower, 220
 ohmmeters, survey with special attention to very high and very low resistances, 3151
 permeameter, r.f. improved design of, 3482
 recording types, servo-operated, review of, 3830
 shockproof, construction and testing of, 853
 voltmeter, hot-wire-bridge, independent of frequency from 50 c/s to 2 kc/s, 857
 with logarithmic amplifier, for range 1 mV—10 V and 50 c/s—100 kc/s, 856
 oscillating-electrode, theory of, 2489
 r.f., stable, comprising waveguide attenuator and thermoelement, 2850
 with square-law characteristic approximated by linear-segment characteristic, 528
 valve, slide-back type, 3486
 survey of types of, 3832
 with unity-gain amplifiers, 3485
 voltmeters and test sets, review of, 1818
 wattmeters, microwave, resonant-cavity, torque-operated, 2495
 review of commercial types, 1168
 v.h.f., wideband, for measurement of transmitter power, 534
 for 20 c/s—20 kc/s, 3496
- Microphones**, (See also Transducers)
 calibration of, thermophone method of, 657
 with cardioid pattern, with 3 rear ports, 970
 condenser-type, using plastics membrane, 2949
 with Ti diaphragm, heat treatment for stabilizing, 2276
 piezoelectric, nondirectional experimental investigation of, 3275
 probe-type, methods of testing, 1296
 ribbon-type, design of, 971
 pressure-gradient, B.B.C. Type PGS, development of, 1607
- Missiles**, guided, fuel cut-off control for, 1186
 principles of, short survey of, 1185
 tracking of, multipath phase errors in c.w. systems for, 2748
 3-dimensional proportional navigation system for, 3177
- Modulation**, amplitude, vector method of analysing, 2529
 frequency, detection of, theory of, 2521
 multiple-pulse-time system, 2214
 output product for 2-frequency input, tables of Bennett functions for, 2213
 phase, high-deviation method based on nonlinear a.m., 287
 pulse, calculation of spectra in, 1203
 delta, quantizing circuits for, 1540
 pulse-code, damped-oscillation method for producing, 3210
 reduction of noise effects and increase of channel capacity in, 258
 transistor counter for decoding in, 1656
 pulse-position, symmetrical-pulse multiplex system for short radio links using, 3878
 pulse-slope, a.f. characteristics of, 561
 noise characteristics of, 1205
 simultaneous a.m. and p.m. in quadrature, 257
- Modulators**, amplitude, using 'anode self-modulation', 2900
 using ferrite gyrator with feedback, 3015
 using pentode suppressor grid, analysis of operation of, 3237
 with valve in amplifier screen-grid circuit, 597
 using class-B amplifiers without grid current, 1571
 ferrite, sidebands produced by, 2005
 frequency, for multiplex broadcast transmitters, 3558
 magnetic, based on reversible permeability variation, 1469
 wide-band, using asymmetrical 3-phase RC oscillator, 1650
 for wide-band radio relay systems, 286
 based on nonlinear coupling via ferroelectric block, 3671
 reactance-valve, effects due to nonlinearity in, 53
- Monitoring**, automatic recording instrument for, 2175
 of sound broadcast programs, B.B.C. technique for, 2221
 of standard-frequency transmissions, at N.P.L., (D)516
- Musical instruments**, electronic, comprehensive survey of, 2183
 electronic organ, acoustic design of, 1283
- Navigation aids**, (See also Radar)
 aerial, for Bristol Britannia, 2073
 comparison of Decca and TACAN, 434
 self-contained, using two-axis gyro device, 2072
 and air traffic control at Zürich airport, 1424
 development by Siemens in Germany from 1930—1945, 1054
 light-weight radio compass, 2396
 Navaglobe-Navarho, comparison with other systems, 761
 TACAN system, for bearing and distance, 125
 symposium on, 3386
 telegee, using existing television transmissions, 762
 U.S.A., survey of, 433
 aerial and marine, consol, night effect in, 759
 consol ('Sonne'), accuracy of, 760
 effect of atmospheric on, measurements in southern and central Africa on, 2740
 marine, microwave harbour beacon, 124
 shore-based cm- λ radar as, 1055
- Networks**, (See also Circuits; Filters)
 active, graph method for study of, 52
 with delay variation, effect on pulse response of, 2984
 dipole, reactive energy in, 39
 formulae for equivalence of, 3664
 group-delay measurements on, error sources in, 3477

Networks, iterated, matrix theory of, 1326
 ladder, with Butterworth or Tchebycheff response, synthesis of, 42
 theory based on Kirchhoff's laws for, 43
 linear, tensor analysis for, (D)682
 linearity of, c.r.s. method for measurement of, 3478
 multidimensional, LC, determination of e.m. fields by means of, 2491
 multipole, derivation of characteristic curves for, 3302
 without mutual inductance, theory of, 41
 node and mesh determinants for, 44
 nonlinear, general analysis for, 2988
 general mathematical theory of, 2326
 quadripole, active, with intermediate-point earthing, analysis for, 1338
 cascaded, matrix method for solution of, 1642
 composite, reactance, geometrical representation of, 1988
 electromechanical, using magnetostrictive core, 350
 geometrical representation of double transformer by, 1989
 geometrical representation of parallel and series reactance as, 1643
 graphical determination of parameters of, 349
 group-delay measurements on, 2482
 linear, optimum characteristics for minimum distortion of pulses in, 1327
 loss-free, linear, geometrical representation of, 2331
 synthesized from nonuniform lines, 2990
 noise factor of, 691
 noisy, theory of, 2665
 transformation rules for noise parameters of, 688
 with nonideal transfer characteristics, bandwidth of, 600
 nonlinear, effect on noise spectrum of, 1644
 operating-parameter cascade matrix of, 1990
 phase shift produced by, measurement of, 3479
 including valves or transistors, matrix analysis for, 2994
 for wide-band matching of aerial impedance, 2991
 RC, nonlinear, for analogue system, 29
 parallel-T, design method based on equivalent circuit for, 2659
 response of, simple α -transform method for approximate determination of, 999
 response functions and vector loci of, 690
 selective, initial transients with a.m. and f.m., 45
 synthesis procedure for realizing given impedance, 1987
 theory of, existence theorem for driving-point impedance functions, 3665
 impedance and admittance determinants in, 2325
 inter-reciprocity concept in, 2983
 based on linearly independent subgraphs, 343
 phase of semi-infinite unit attenuation slope, tables of, 2989
 variation and compensation theorems in, 1321
 transient response of, comparison of methods of calculating, 689
 theory of, 3670
 transient and steady-state response of, analysis of correlation between, 2328
 2-terminal, comprising diode in series with linear impedance, analysis for, 687
 impedance and admittance of, 3-dimensional locus diagrams for, 2641
 with only 2 types of impedance element, theorem on, 38
 operational impedance of, theory of, 3295
 theory of, 684
 2-n terminal, impedance transformation of, analysis for, 1995
 3-terminal, null-type, simple analysis for, 3672
 Noise, (See also Atmospherics; Cosmic radiation; Fluctuations; Solar radiation; Sound)
 acoustic, correlation properties of, analysis for, 1934
 in aerials, due to external heated bodies, 3638
 a.f., measurement of correlation coefficient of, 1968
 background, square-law detection of, analysis for, 3524
 in CdS single crystals at high field strength, 3792
 contact, in composition resistors, 34
 cross-modulation, in multichannel communication systems, spectral density of, 2883
 current, a.f., in PbS, 1109
 in Ge, frequency spectrum of, 1454
 in Ge filaments, spectrum of, 2445
 in Ge p - n diodes, frequency spectrum of, 2558
 in semiconductors, relative influence of majority and minority carriers on, 1111
 theory of, 480
 theory of $1/f$ spectral distribution of, 817
 in diode detector, due to voltage fluctuations in i.f. stage, 2208
 effect of contrast on visual detection of signals in, 2400
 effect on trigger circuits, 3681
 in electron beams from field-emission cathodes, 3582
 factor, meter for, automatic, 1498
 of quadripoles, 691
 flicker in Ge diodes, spectral distribution of, 1576
 in photocells, 3569
 relation of cathode space-charge standing-wave patterns to, 1913
 in secondary-emission valves and photomultipliers, 3587
 f.m., in oscillators, 1649
 in focused-beam valves, due to positive ions and secondary electrons, 1256
 in Ge diodes, effect of illumination on, 290
 generators, dm- λ , using gas-discharge tubes and two-conductor lines, 3147
 gas-discharge, effective noise temperature of, calculation of, 3146

Noise, generators, gas-discharge tube as, theory of, 3484
 standard-temperature, S-band, calibration of, 3829
 influence on oscillators of, 1648
 in insulating materials, at pre-breakdown current, 845
 in junction transistors, measurements at 7-50 kc/s of, 606
 measurement of, errors due to line reflections in, 2473
 with linear scale, for microwave systems, 527
 use of thermoelectric standard noise sources for, 1484
 at 3 cm λ using hot source, 3825
 in microwave long-beam valves, due to electron interception, 1594
 in negative-feedback a.f. amplifiers, 3009
 in nonlinear devices, hysteresis effect in, 929
 in photoconductive cells, reduction of, 1248
 in photomultipliers, hysteresis effect in, 929
 in p - n transistors, 1246
 in polymeric insulating materials, experimental investigation of, 3817
 radiation, measurement of, comparison of modulation and 2-receiver methods for, 535
 in reception, simple method for determining level of, 3828
 statistical theory of, 557
 response of systems to, methods for investigating, 2527
 r.f., measurement of, 3137
 influence of detector time constant in, 1864
 in semiconductor junctions, 1894
 in semiconductors, distribution function of, 818
 Hall-effect investigation of, 1101
 shot, in junction diodes and transistors, 600
 in p - n junctions, frequency variation of, 2123
 in valves, theory of, 1581, use of correlation tensor in, 1582
 in Si filaments, effect of illumination on, 1089
 in Si microwave diodes, (D)601
 in Si p - n junction photovoltaic cells, 1899, 1900
 in space-charge-limited diodes, 947
 specific, of PbS photocells, 2249
 spectrum modifications on passage through nonlinear quadripole, 1644
 statistical analysis of, use of Gram-Charlier series in, 2677
 survey of theory of, 2308
 in television, visibility of, 1234
 thermal, null-indicating radiometers for, 222
 sensitivity of radiometers for, 221
 in travelling-wave valves, 622, 3579
 for 3.2 cm λ , measurements on, 3578
 in u.h.f. amplifiers, 62
 in valves and transistors, 616
 visual detection of pulse signals in, 129
 v.l.f. spectrum analysis using speeded-up optical record, 2855
 Nomograms, three-dimensional, practical techniques for, 510

Oscillations, of compressible ionized fluids, eigenfrequencies, of, 721
 containing harmonics, synchronization of, theory of, 2333
 damped, logarithmic decrement of, time variation of, 708
 h.f., crystal diode for generating, 1888
 in low-pressure discharges, survey of, 3692
 at mm λ , generated by magnetic undulator, 1034
 nonsinusoidal, nonlinear distortion due to system response, 2012
 plasma, in electron beams, 289
 in external field, 3018
 in hot-cathode valves, 633
 relaxation, in triode-valve circuit with high grid resistance, 1652
 subharmonic, in nonlinear systems, experimental investigation of, 2977
 with positive damping, 1374
 at sub-mm λ , generated by bunched electron beam in waveguide, 1036
 synchronization of, nonlinear differential equation for, 3464
 theory of, interrelation between Rayleigh's and van der Pol's equations, 3132
 in thermistors and Ge point-contact rectifiers, 696
 in time-variable linear systems, general analysis for, 2651
 Oscillators, (See also Circuits; Signal generators)
 a.f., stable, using point-contact transistor, 1335
 blocking, using junction transistor with $\alpha > 1$, 1893
 as radar pulsers, 3307
 rapid-action, using transistors, 356
 bridge-stabilized, general analysis for different forms of, 2997
 constant-frequency, analysis for, 697, (D)2996
 crystal-controlled, frequency stability of, 2998
 Moscow conference on piezoelectricity, 2770
 effect of electrical fluctuations on, 55
 effects due to nonlinearity in, 53
 fluctuations of amplitude and phase in, 1996
 f.m., gain characteristic inside pull-in range of, 3560
 noise in, 1649
 heterodyne, very low-frequency, 59
 influence of noise in, 1648
 klystron, inherent frequency fluctuations of, 1997
 LC, with amplitude limitation by biased diodes, 2667
 frequency stability of, analysis for, 2337
 with load coupled through long feeder, frequency stability of, 3305
 Meacham-bridge, 1-Mc/s, using transistors, 1654
 microwave, using cavity resonator and molecular beam, 402, 403, 3710
 increase of Q factor by regeneration in, 348
 using disk-seal valves, circuits and measurements for, 1658

- Oscillators, microwave, based on electron spin resonance, 3032
 molecular-beam, theory of, 3709
 mm- λ , Čerenkov radiation as basis of, 1004
 based on plasma oscillations in gas or semiconductor, 1681
 multivibrator, bi-stable, design of, 1006
 using junction transistors, 2340
 triggered, stabilization of pulse duration in, 357
 using triode-pentode valves, 2999
 using negative-resistance elements, theory of, 3303
 nonlinear, frequency-response analysis of, approximate method for, 56
 nonsinusoidal, 4-position flip-flop, topological analysis for, 2339
 phase-shift, cathode-follower, 1005
 RC, using transistors, 3308
 wide-range, using d.c. coupling, 2335
 3-phase, asymmetrical, for wide-band f.m. system, 1650,
 effect of cathode impedance on, 1998
 using point-contact transistors, frequency stability of, 1334
 pulse, peak power of, method of determining, 211
 survey of, 2338
 thyatron circuit, for 240-V 10- μ s pulses, 3000
 with continuously variable output, 2341
 using transistors, 358
 triggered, 2000
 relaxation, phase-controlled, 1651
 sawtooth, using junction transistors, 1999
 stabilized, Pound, modification facilitating adjustment of, 355
 super-regenerative, transistor-type, 500-c/s, 3002
 synchronized, rejection of unwanted tones and noise by, 2334
 using tandem transistors, 3001
 using transistors, for a.c. bridges, 529
 temperature-stable, for telemetry, 2342
 u.h.f., using double-ended lighthouse-type valve, 2589
 valve, comprising nonlinear coupled systems, topological analysis
 of, 2666
 stability of, comprehensive theory of, 54
 variable-frequency, locked to crystal-controlled signal, 57
 for S-band radar equipment, 3679
 stabilized against resonator drift, 3306
 u.s.w., with nonlinear capacitors, 3663
 v.l.f., using cathode followers as phase-shift elements, 1333
 weakly coupled, mutual synchronization of, 3678
- Oscillograms**, accuracy of estimation of, 531
Oscillographs, light-beam, writing speed of, 530
- Particle accelerators**, betatron, energy stability of Illinois machine, 1176
 15-MeV model for nondestructive testing, 877
 20-MeV, at Manchester, 876
 cascade-generator type, 4-MeV, 1506
 circular, design of pole faces using electrolyte tank, 2503
 with circular guide field, radiation damping in, 872
 cyclotron, beam characteristics of, method of improving, 3163
 with sectional magnet, 3503
 variable-energy, 229
 e.s., for proton beams up to 3.25 MeV, 1838
 linear, shunt resistance of, measurement of, 1813
 using waveguide, effect of beam loading in, 230
 giving 45-MeV electrons, 879
 review of, 878
 for MeV particle energies, Budapest model with Van de Graaff
 generator, 3845
 proton synchrotron, at Birmingham, injection phenomena in, 2860
 at Canberra, 2858
 synchrocyclotron, Liverpool machine, extraction of proton beam
 from, 873
 nonlinear extraction of beam from, 1508
 synchrotron, betatron, frequency measurements on, 2483
 constant-gradient, space-charge and ionization effects in, 2186
 for producing 300-MeV electrons, 874
 scattering of protons by residual gas in, 2185
 with storage rings to increase available energy, 3846
 strong-focusing, betatron oscillations in, 2859, 3165
 electromechanical analogue computer for studying, 2973
 gas scattering in, 1840
 influence of magnetic-field errors on betatron oscillations
 in, 1509
 influence of radiation on, 3504
 linear theory of, 1839
 oscillations due to radiation fluctuations in, 3164
 required accuracy of alignment in, 875
 340-MeV machine at Glasgow, 538
- Particles**, charged, motion of, in magnetic field, 2704
 trajectories of, in magnetic field, floating-wire method of in-
 vestigating, 1697
- Permeability**, high-frequency, of conductors, formula and abac for, 2307
 measurement of, method using cavity resonator, for toroidal cores, 2848
 'thin-sample' slotted-line method for, 2845
 r.f. permeameter for measurement of, 3482
- Permeameter**, modified Iliovici, 2164
- Phase**, indicator circuit for, fast-acting, 3835
 measurement of, c.r.o. method for, accuracy of, 2484
 in networks, error sources in, 3477
 meter, a.f., using transistors, 1167
- Phase, meter, comparison-type, using delay line, 1166
 shift, produced by quadrupole, measurement of, 3479
 shifter, microwave, using rotating helix, 321
 90°, wide-band, 2645
- Phosphors**, alkaline-earth oxide and sulphide, activated with Eu, 1064
 with associated donor-acceptor luminescent centres, 2405
 (Ca, Na)₂P₂O₇, preparation and optical properties of, 2079
 Ca₂SiO₄, influence of crystal structure on luminescence of, 1067
 Ca₂SiO₄-Mn,Pb and (ZnBe)SiO₄-Mn, luminescence spectra of, 136
 Cd fluorophosphate, Pb- and Mn-activated, 2408
 CdS, field breakdown of, 135
 influence of Cu and Fe additions on, 3750
 optical absorption spectrum of, 774
 CdS-Ag, model for, 1734
 CdS and ZnS, optical properties at 0.6-14- μ , 1062
 crystal, inorganic, survey of properties of, 132
 destructive effect of H⁺ ion bombardment on, 3752
 dielectric-constant variation under infrared irradiation, 133
 effects of positive-ion bombardment on, 445
 electroluminescent, boron nitride, preliminary note on, 3081
 dielectric dispersion of, 782
 effect of electron traps in, 3755
 temperature dependence of brightness waves for, 2761
 high-conductivity, for cathodoluminescent lamps, 3756
 impurity-semiconductor, statistical-kinetic theory of, 821
 inorganic-crystal, physical chemistry of, 778
 LaAlO₃ perovskite-type, experimental investigation of, 1065
 MgF₂.MgO.SiO₂, containing TiO₂ or TiO₃ + MnO, luminescence
 of, 1066
 MgO, field-enhanced luminescence of, 138
 oxygen-dominated, effect of departure from stoichiometry in, 3397
 recombination mechanism of, 3076
 transparent coatings of, production of, 444
 for tricolor television tubes, experimental investigation of, 783
 (Zn, Cd)S, dielectric constant of, effect of illumination on, 2406
 infrared stimulation and quenching of, 131
 (Zn, Cd)S-Mn, effects of electric fields on, 2760
 (Zn, Cd)S-Mn and ZnS-Mn, under X-ray excitation, effect of
 electric field on, 2081
 ZnS, accumulation property and electron levels in, 775
 effect of photo-irradiation in alternating field, 777
 electroluminescence of, characteristics of, 3754
 frequency dependence of, 2082
 mechanism of, 1071
 theoretical and experimental investigation of, 2764
 electroluminescent, dielectric behaviour of, 2411
 influence of temperature on, 2409
 time-average output of, 2410
 experimental investigations of conductivity and structure of, 2759
 field-induced colour shift in, 3398
 hexagonal, X-ray powder diffraction data for, 1735
 with rare-earth activators, optical properties of, 2080
 single crystals, electro-luminescence in, 781
 under ultraviolet excitation, effects of electric field on lumin-
 escence of, 2763
 ZnS-Ag, deterioration caused by positive-ion bombardment in, 1070
 luminescence of, effect of electron bombardment on, 3592
 ZnS-Ag and (Zn, Cd)S-Ag, effect of heat treatment on luminescence
 of, 2762
 ZnS-Cu, decay and temperature dependence of, 3080
 effect of red and infrared radiation on emission from, 443
 electron levels in, 2758
 reduction of luminous output under intense excitation, 3079
 state of Cu activator in, 134
 ZnS-Cu, Cl, luminescent centres in, 776
 ZnS-Cu, Co, capture and recombination cross-sections in, 442
 effective cross-sections of photo-liberated electrons in, 2407
 ZnS-Mn films, temperature variation of electroluminescence of, 1069
 ZnS-type, spectral distribution of infrared-stimulated phosphor-
 escence of, 1431
 ZnS and CdS, infrared luminescence of, 3753
 ZnS and (Zn, Cd)S, electroluminescence waveforms in alternating
 fields, 446
- Photocathodes**, Sb with alkali metals, high sensitivity of, 608
- Photocells**, barrier-layer, Ge p-n junction, 615
 Se, effect of radioactive radiation on, 2567
 non-additivity in, 2921
 time stability of, 613
 electron-multiplier, with Ag-Cs photocathodes, dark current of, 930
 cathode uniformity and other characteristics of, 297
 with current amplification of 500 000, 299
 dark-current instability in, cause and cure of, 610
 duration and shape of current pulses in, 298
 flicker noise in, 3587
 low-delay design using two-sided dynodes, 1896
 noise in, hysteresis effect in, 929
 optical-feedback effects in, 1580
 for scintillation counting, focusing of, 3248
 statistical study of multiplication in, 296
 transit-time spread in, 2247
 image-intensifier, realizable light gain in, 871
 PbS p-n junction, preparation and properties of, 3250
 photoconductive, CdS, properties and applications of, 2248
 Ge-filament, signal/noise ratio of, 2565
 large-area, made from CdS powder with plastic binder, 612
 using microcrystalline or sintered layers, 611

- Photoconductivity, (See also Semiconductors)
 CdS, effect of infrared radiation on, 130
- Photoelectric effect**, in metals, review including Russian work on, 373
- Photoelectric emission**, (See also Electron emission)
 from Ag directly into NaCl, TiCl and TiBr, 2757
 from ferromagnetic materials, 1059
 from graphite, measurements of, 771
 of metals exposed to ultraviolet radiation, 1058
 use in demonstrating beats between independent light beams, 710
- Photoelectricity**, research on, survey of, 68
- Photoemissive materials**, Cs-Sb layers, optical and electrical measurements on, 3/49
- Photomagnetolectric effect**, in CdS, 2404
 in Ge, saturation of, 2113
- Photovoltaic effect**, in PbS films, variation with direction of illumination, 3077
- Physics**, statistical problem and theory of probability in, 1349
- Piezoelectric materials**, (See also Quartz)
 BaTiO₃, anisotropy of, 789
 ceramics, constants of, 3082
 effect of firing cycle on, 1434
 electromechanical properties of, 2083
 ultrasonic velocities in, 144
 preparation by conversion of BaTiO(C₂O₄)₂ · 4H₂O, 3399
 solid solutions, experimental investigation of, 3407
 ceramic solid solutions, experimental investigation of, 1073
 lithium sulphate and potassium sulphate, optical spectrum of, 1063
 Moscow conference on, 2770
 production methods developed at British Post Office Research Station, 2416
 Q factor of, method of measuring, 2479
 r.f. absorption spectra of, 455
 Rochelle salt, infrared absorption spectrum of, 2089
- Plasma**, carrier density in, pulse-probe method for determination of, 3336
 charge segregation and oscillations in, magnetohydrodynamic theory of, 3346
 conductivity of, calculation of, alternative methods for, 1366
 theory of, 382
 electron, c.m. radiation from, 3706
 electron oscillations in, 86
 e.m. wave interaction experiments in He, 1383, 3351
 Faraday effect at 10 kMc/s in, 732
 floating-probe methods for measurements on, 2687
 kinetic theory for case of 'Maxwellian' molecules, 2691
 Langmuir-probe method of investigating, theory of, 1024
 in magnetic field, particle transport in, 1030
 magnetohydrodynamic shock waves in, structure of, 2701
 oscillations in, dipole resonant mode of, 2693
 in external field, 3018
 potential discontinuities in, 3339
- Plasma, stationary waves in, 2029
 in stellar atmospheres, effect of magnetic field on convective instability in, 3371
 thermal conductivity of, 1029
 waves in, theory of, 731
- Potential**, distribution in grids, partial-difference equations for, 1019
 of insulating surfaces, vibrating-capacitor method for measuring, 204
 of multipoles, analysis for, 2349
- Potentiometers**, a.c., for amplitude and phase measurements, 3148
 for feeding digital data into computer using teleprinter tape, 1314
 switch-dial, for low-resistance applications, 3487
- Power**, measurement of, for pulse generator, 211
 microwave, measurement of, application of Hall effect to, 1488
 resistive-film radiometer for, 1829
 at 3 cm λ , efficiency of thermistors and bolometers for, 525
- Power supplies**, (See also Batteries; Generators)
 balanced, providing equal and opposite voltages, 3537
 for c.r. tube, using transistor oscillator, 3887
 using Ge and Si *p-n* junctions bombarded by β particles, 2437
 for instrument calibration, high-power, 1554
 isotope-irradiated photocells as, 2567
 low-ripple, regulated, for 350-1000 V, 572
 based on photovoltaic conversion of solar energy by semiconductor *p-n* junctions, 3769
 semiconductor solar-energy converters as, 3538
 for telecommunications, automatic, 'no-break' arrangements for, 2543
 transistor-oscillator unit for, 1555
 using valve rectifiers with capacitor input, design of, 912
 vibrators, survey of, 1216
 900-V, using transistors, 3539
- Probes**, for microwave near-field measurements, 2170
 magnetic, for measurements on synchrotron, 2849
- Public-address systems**, for open spaces, arrangement of loudspeakers for, 3628
 using radio carrier, 2278
 stereophonic, open-air, at Hollywood, 317
- Publications**, radio, in U.S.S.R., 2269
 Trans. Inst. Radio Engrs, Index 1955, 2594
- Pulses**, at cm λ , transmission in waveguide and cavity resonator systems of, 344
 measurement of amplitude of, c.r.o. method using direct-voltage calibration, 2844
 measurement of, standard 55 I.R.E. 15.S1 on, 517
 microwave, regeneration of, in repeater chain, 1655
 μ sec, transmission-line devices for use with, 60
 for waveguide testing, 1808
 separate trains of, frequency of coincidence of, 902
 technique for measurement of μ sec time intervals, 2835
- Pyroelectric effect**. See Ferroelectric materials.
- Q-factor**, of cavity resonators, measurement of, 3141
 of magnetron cavity, directional-coupler method of measurement for, 2493
 of piezoelectric crystals, method of measuring, 2479
- Quartz**, (See also Resonators, piezoelectric)
 adsorption of NH₃ on, 3426
 anelasticity and dielectric loss of, 3811
 artificial, technique for eliminating bubbles in, 841
 charging of surfaces by each other, 447
 crystals, relaxation processes in and Q of, 2826
 dielectric constant of, temperature and frequency variation of, 1474
 dielectric losses, at low temperatures and low frequencies, 451
 and polarizability of colour centres in, 2768
 dislocations in, experiments demonstrating, 842
 fused, velocity of ultrasonic waves in, 1131
 investigation of piezoelectric oscillations in, X-ray diffraction method for, 1473
 piezoelectric structure of, 3083
 rutile inclusions in, intergrowth of, 2460
 and silica compounds, effect of u.v. and X-ray irradiation on, 3460
 single-crystal, density in relation to imperfections in, 838
- Radar**, airborne, equipment for weather indication, 1426
 video amplifier using transistors for, 3322
 weather-surveillance, commercially available equipment, 435
 for airport terminal, Type-S232, 3387
 automatic tracking systems, French-type, 3389
 automatic tuning and a.f.c. system for, 2075
 detection of pulsed signals in noise in, 439
 echoes, from mixture of ice and air, back-scattering coefficient for 1-10 cm λ , 899
 from birds and insects, 3742
 effect of a.g.c. on tracking noise in, 2747
 elevation-angle measurement by, 2746
 f.m., high-accuracy, 3746
 for mercantile marine, 3072
 harbour surveillance system at Dunkirk, 1727
 high-resolution pulse technique for, 1808
 in H.M. telegraph ships, modernization of, 2539
 illumination of operation rooms and signal detection threshold, 1730
 marine, and navigation aids, symposium on, at Boston, Mass., 1954, 1726

- Radar, marine, ramark beacon for use with, 1056**
 modulators for, frequency divider for synchronizing, 359
 and navigation aids international conference at Scheveningen, 1955, 123
 network with centralized control, 1728
 polarization power scattering matrix for, 1425, (D)2399
 portable, for aircraft landing system, 126
 p.p.i. display, combined with computed position markers, 2398
 relay systems with compressed bandwidth for, 3744
 primary, a.f.c. using reflex klystron for, 3068
 probability of detection and number of illuminating pulses in, 3067
 pulsed, with circular polarization, reduction of rain clutter at 3 cm λ , 763
 range of, improved method of calculating, 1427
 resolution of echoes from closely spaced reflecting layers with, 764
 search-type, angular accuracy of, 3747
 servomechanisms for, stability and time response of, 269
 rain observations at Poona, 127
 reception of weak signals in noise, review of methods for, 3743
 recommended procedure for operation and data collection during severe weather, 2074
 reduction of clutter in, by use of logarithmic receivers, 2076
 reduction of rain clutter in, turnstile waveguide system for, 1729
 reflections from metal strips in, 1731
 sea clutter, in, 3390
 secondary surveillance systems, 3388
 simulator, storage-tube type, 2077
 for training purposes, 3745
 using ultrasonic delay line, 3070
 3-dimensional, 3071
 test equipment using transistor pulse generator for, 2496
 thunderstorm observations by, 765
 vehicle-speed indicator system using, 1732
 vertical coverage diagram for, effect of rough sea surface on, 438
 video testing based on transient response in, 2474
 1.25-cm- λ equipment, detection of clouds and precipitation by, 2749
- Radar Research Establishment, Malvern, organization and program of, 3596**
- Radiation, (See also Aerials)**
 e.m., Cerenkov, from bunched electron beams near medium with complex refractive index, 3350
 from electron in magnetic field, 2364
 theory of, 3700
 due to gyromagnetic resonance in Penning gauge, 73
 from electron plasma, 3706
 mm- λ , use of bunched electron beams for producing, 3701
 'molecular-ringing', from molecules driven by e.m. field, 3707
 from molecules in h.f. field, 3033
 due to motion of charges near inhomogeneity, 3708
 quantum theory of, survey of, 2011
 from source on metal body, effect of surface curvature in, 3702
 particle and γ , effects in solids due to, 2034
- Radio astronomy, (See also Cosmic radiation, r.f.; Solar radiation)**
 absorption of 3.5-m radiation in nebula NGC 6357, 1395
 aerial smoothing of brightness distribution in, graphical method for correction of, 98
 cosmological significance of radio stars, 405
 distribution of radio stars, discrepancies between results of different observation methods in, 3712
 early history of, 2706
 emission from galactic deuterium, observations of, 3039
 emission from novae and supernovae at 3.5 m λ , 2708
 galactic halo and origin of cosmic rays, 2035
 galactic survey at 400 Mc/s, 735
 identification of Class-II radio stars, 1394
 International Scientific Radio Union special reports on, 1043
 lunar occultation of radio source in Gemini, 97
 Magellanic clouds, determination of masses of, 2709
 motions of, 21-cm- λ study of, 1702
 measurement of diameter of radio stars using interferometer with post-detection correlation, 1700
 nature of radiation from galaxy NGC 4486, 3356
 observations, of Crab nebula during eclipse by moon, 2711
 of deuterium in galaxy at 91.6 cm λ , 408
 of discrete emitters on 3.2 cm λ , 1044
 on some bright galaxies, 736
 polarization measurements on radiation at 1.9 m λ from three intense sources, 3714
 radiation, from Jupiter on 18.3 Mc/s, 2710
 from Venus at 11 m λ , Class-II type, 3358
 impulsive type, 3357
 radio-star scintillations, correlation with spread-F echoes of, 2731
 r.f. source near galactic centre, observations at 3.5 m λ on, 3713
 r.f. source Hydra-A, angular-size variations of, 1703
 intensity variations of, 1701
 r.f. source on Jupiter, location of, 406
 mechanism of radiation from, 407
 nature and spectrum of, 2036
 scintillations of stars at 50 Mc/s, 422
 survey of cosmic sources at 600 Mc/s, 2707
 telescope, Harvard University 60-ft instrument, 3715
 upper-atmosphere investigations by, 2368
- Radio links, Austrian u.s.w. network, 1548, 3534**
 Italian Post Office network, Bologna-Pisa extension to, 2535
 microwave, Japanese, using reflex circuit with travelling-wave valves, 1212
- Radio links, microwave, relay, between Saint John and Halifax, 2537**
 wide-band, survey of construction techniques for, 568
 pulse, for multiplex W/T, R/T and program transmission in Greece, 1207
 transmission problems, review of, 2199
 v.h.f., f.m., between Puerto Rico and Virgin Islands, 2536, 3218
 long-distance between Shetlands and Norway, 3879
- Radiometers, comparison of modulation and 2-receiver types, 535**
 for thermal-noise measurements, null-indicating, 222
 sensitivity of, 221
- Radiosonde, Type-MD 1, for measurements of refractive index of air, 3367**
- Radiotelegraphy, (See also Communication systems, etc.)**
 communication circuits, differences in reception in two directions on, 3208
 frequency-shift system, desirability of a.f.c. in receivers for, 253, (D)2209
 Janet system using meteor-trail transmission path, 3533
 multiple-frequency-shift system for, 564
 signal waveform in, influence on adjacent-channel interference of, 2522
 technique adapted for v.h.f. trans-horizon propagation, 2532
 using T.O.M. equipment with automatic error correction, observations at Frankfurt a. Main, 2533
- Radiotelephony, (See also Communication Systems; Radio Links)**
 Copenhagen-Thorshavn link, 3217
- Radomes, sandwich-structure, design of, 1965**
- Reactance, measurement of very low values by Q-meter method, 522**
- Reactors, crossed-field, operating mechanism and applications of, 339**
 for magnetic amplifiers, optimum core shape for, 340
 saturable, frequency dividers using, 359
 in magnetic amplifiers, behaviour of, analysis of, 3320
 use in pulse generators for radar modulators, 36
- Receivers, (See also Television)**
 broadcast, Japanese, using transistors, 3204
 communication, single-heterodyne, Type-BX925A, 3527
 Telefunken rack-mounted installations for telegraph services, 1536
 design for reduction of fire hazards due to, 3205
 double-superheterodyne, for telemetry, 2526
 f.m., design giving improved capture ratio in, 3865
 fixed-tuned, 2880
 interference radiation from, methods of measurement of, 3826
 narrow-band, filter requirements for minimizing impulse noise in, 2523
 embodying pulse-counter discriminator, 2524
 switched-tuned, with reactance-valve a.f.c., 3526
 for frequency-shift radiotelegraphy, desirability of a.f.c. in, 253, (D)2209
 noise factor of, chart showing relation to bandwidth and aerial-circuit power, 553
 selective circuits for, effective noise bandwidth of, 903
 signal-seeking, circuit for stopping seeking action in, 555
 superheterodyne, alignment of, 3866
 high-selectivity, for 6-36 kc/s, 3530
 pentagrid converters for, 3590
 v.h.f./u.h.f., for field-strength recording, 3528
 s.w., communication, Type E104, 556
 tuned r.f., 554
- Rectification, (See also Field strength; Television; Wave propagation, e.m.)**
 diversity, effect of signal correlation on advantage gained from, 1862
 for u.h.f. long-range communications, 254
 statistical analysis for, 3525
 theory and practical circuit for, 2881
 f.m., 'spitting' effect due to insufficient bandwidth in, 552
 in noise, statistical theory of, 557
 on radiotelegraphy circuits, differences in the two directions of, 3208
 of weak radar signals in noise, review of methods for, 3743
- Rectification, at Cu-Cu₂O junction, effect of crystal orientation on, 2809**
- Rectifiers, (See also Semiconductors; Valves, crystal)**
 crystal, chart for evaluating constants of, 2241
 Cu₂O, capacitance of, temperature dependence of, 270
 Ge, alloyed-junction, Type-EW54, 1217
 point-contact, oscillations in, analysis for, 696
 influence of contact-surface state in, 3240
 power-type, 2886
 physical and engineering aspects of, 574
 half-wave circuits, characteristics of, 3888
 ignitron, semi-conducting igniters for, 272
p-i-n, dependence of current density on width of intermediate zone in, 598
 power, Ge and Si *p-n*-junction types, review of development of, 2885
 Si diffused-*p-n*-junction types, 3225
 Si diffused *p-i-n* junction, theoretical investigation of characteristic of, 3226
- Se, effect of various impurities on, 271**
 effectiveness of CdSe intermediate layer in, 165
 for radio and television equipment, performance and rating of, 3540
 Si, use as ion detectors, 2181
 Si-junction, production and properties of, 3889
 TiO₂, for high-temperature operation, 1218
- Refractive indices, of gases, at 72 kMc/s, 1016**
- Regulation, (See also Control systems; Stabilizers)**
 automatic, U.S.S.R. bibliography for 1954, 537
 thyatron grid-control circuit for, 2223
- Relay systems, (See also Communication systems; Radio links; Television)**

Relay systems, for local distribution of broadcast material, 1210
v.h.f., for British Forces broadcasting network in Germany, 1213

Relays, cryotron, based on control of superconductivity by magnetic field, 1980
frequency-sensitive, using 'diode-pump' integrator, 1007
with inactive zone and hysteresis, transfer function of, 1979
Russian bibliography for 1950-1954, 680

Research, institutes, electrical engineering, Italian, Galileo Ferraris, 957
literature, organization for dissemination of, 1600
radio, international cooperation by U.R.S.S. and I.R.E. in, 3264

Resistance, of Fe-Ni alloys, effect of magnetic field on, 1777
of glass, d.c. method for determination of, 521
measurement of, survey of methods for, 3151
of metals, at high current densities, 450
of superconducting tin at 7.3×10^{19} c/s, 1776
standards of, Ni-Cr-Al-Cu 'evanohm' alloy wire for, 3085
of various materials in various geometric forms from 10 c/s to 100 kMc/s, calculation of, 1634
very high, Townsend circuit with slide-wire cylinder for measurement of, 3473
of water and electrolytes, I.F. measurements of, 520

Resistivity, measurement of, 4-probe apparatus for, 2476
of metals, electron-phonon-interaction theory of, 1355
heated by high-density currents, 3690
in magnetic field, thermodynamic theory of, 1390
of semiconductors, measurement of, four-probe method for, 1100
microwave measurement of, resonant-cavity method for, 2158
of thin metal films, 3762

Resistors, coaxial, with traxix-profile outer conductor, 2313
composition, contact noise in, 34
high-temperature operation of, effect on length of life of, 2316
injection-moulding process for, 35
impedance of, frequency variation of, 33
nonlinear, bridge for measurements on, 2854
positive, frequency conversion with, 2978
SiC, voltage-dependent, measurements to determine mechanism of, 2514

Resonance, (See also Absorption)
cyclotron, under anomalous-skin-effect conditions, 3334
and energy-band structure in Bi, 2140
in semiconductors, theory of, 3421
electron, report of Geneva conference on radio-frequency physics, 3031
spin, application in microwave oscillators and amplifiers, 3032
ferromagnetic, solutions of equations of, 1122
ferromagnetic, microwave, in Mn ferrites, 1791
in Ni-Fe ferrites, 492
and permeability of Fe, 2134
possible source for line width in, 2033
gyromagnetic, in Penning gauge, r.f. radiation due to, 73
magnetic, effect of perturbing oscillations on, 1386
of ferrites in u.h.f. circularly polarised field, 2455
in InSb, 1108
and GaSb, 1107
line widths and relaxation times in, 1388
at mm λ and cm λ , in α -Fe₂O₃, 486
nuclear, fluxmeter based on, 3480
influence of field inhomogeneity in, 404
radio-spectroscopy study of, 1694
nuclear-spin echoes in, information storage by, 1038
microwave, in α -Fe₂O₃, 2132
cyclotron, in Ge-Si alloys, 1456
in Ni and Ni alloys, experimental investigations of, 829
paramagnetic absorption, in metals, 186
nuclear, in range 700 Mc/s-1 kMc/s, spectrometer observation of, 1696
paramagnetic, autodyne detector for, theory of, 1664
in glass, 502
measurements on α -diphenyl- β -picryl hydrazyl at 20 Mc/s, 2703
in transition-group ions, survey of, 2139

Resonators, (See also Piezoelectric materials)
acoustic, hollow-wedge, 1
perforated-panel, coupled vibrations in, 3617
sound absorption by, influence of geometrical arrangement on, 3604
cavity, almost conical, theory of, 1640
coupled, parabolic-tube, 2656
theory of, 2655
cylindrical, analysis for, 685
design method using curvilinear coordinates for, 3669
containing dielectric, natural frequency of, 2657
effect of ferrite sphere on frequency of, 2658
excited harmonically by bunched electron beam ('harmotron'), 1000
excited by thin aerials, theory of, 1641
containing ferrites, field distribution in, 347
modes of oscillation in, effect of short-circuit on, 686
Q of, measurement of, 3141
shunt resistance of, calculation of, 1324
spherical-frustum, 2654
step-by-step method for design of, 17
transmission of pulses in, analysis for, 344
crystal, analysis for vibrations of, 1322
with divided electrodes, quadrupole equivalent network for, 2653
Moscow conference on piezoelectricity, 2770

Resonators, high-Q, piezoelectric and magnetostrictive, equivalent-circuit constants of, 3476
linear, general theory of, 2650
piezoelectric, multimode, electromechanical coupling coefficients in, 647
Q factor of, pressure dependence of, 3668
determination of, 523
quartz, automatic vacuum-plating equipment for production of, 503
for frequency stabilization of oscillators, 2998
overtone, for 40-50 Mc/s, 2330
spectrum analyser for, 202
temperature coefficient and overtone order of, 346
temperature variation of frequency of, 1323, for different cuts, 1639

RLC series circuits, analysis for transients in, 2329
travelling-wave, using directional coupler with waveguide loop, 1325
ultrasonic, quartz, radiation resistance of, experimental determination of, 1282

Rheostats, concavity of resistance/shaft-position characteristic of, 1635, 3292

Rubber, conducting, properties and applications of, 1143

Scattering, (See also Diffraction; Sound; Wave propagation)
of e.m. waves, from random surface, 1382
of light, by inhomogeneous solid, 1353

Screening, magnetic, by i.o. tubes, 2367

Seals, ceramic/metal, design of and materials for, 193

Semiconductors, (See also Crystals; Photoconductive materials, etc.)
Ag₂Te, electrical and optical properties of, 2801
in alloys, valence and atomic size of, 2798
AISb, effect of impurities on conduction mechanism in, 1106
aromatic hydrocarbons, electrical properties of, 2093
B and B₁₂Al, frequency and temperature variations of conductivity of, 804
Bi₂O₃, conductivity measurements on, 3110
bipolar diffusion in, for case of spherical symmetry and external field, 2097
mathematical analysis for, 1752
Bi₂Se₃ and Bi₂Te₃, diffusion of Sn and Sb in, 1110
Bi₂Te₃, thermal conductivity of, 2449
thermoelectric properties of, 1083
carbon, experimental investigation of, 2783
carrier-concentration disturbances in, analysis for, 792
carrier lifetime in, 'light-disk' method of measuring, 795
CdS, hole mobility in, evidence for, 3791
single crystals, noise at high field strength in, 3792
CdTe, dielectric constant of, 3790
electrical properties of, 3769
optical properties and energy gap of, 3440
ceramics based on WO₃, preparation and properties of, 3109
characteristic times of electronic processes in, 3414
chemical bond in, 2781, 3422
chemical interaction between impurities in, 3409
compounds, binary, zone-melting processes for, theory of, 2810
intermetallic, energy levels in, effect of impurities on, 1748
isomorphism of, 2096
with Mg, electrical properties of, 1753
photoeffects in, 769
possible compositions of crystals in, 2095
stoichiometry of, 3412
symposium on, 145
with zinc-blende structure, photoelectric properties of, 2779
with measurable vapour pressure, zone-melting processes for, 3445
of Se and Te, 2091
ternary, of Tl, Sb, and As selenides, experimental investigation of, 3417
of Tl-Sb-Se, experimental investigation of, 1751
Tl₂Sb₂Se₄, structure of, electron-diffraction study of, 2448
concept of hole in, network-analogy explanation of, 1746
conduction in strong electric fields in, equations for, (D)458
conductivity and Hall effect in, 2092
conferences, U.S.S.R., 1955, 459, 3767
contacts between, field-emission effects at, 1084, 3091
copper phthalocyanine, photoelectric properties of, 2428
CrSb₃, thermoelectric properties of, 3773
crystal structure of, X-ray camera for investigating, 840
CsCl conductance mechanisms and thermal transition in, 1103
Cs₂Sb, secondary emission from, 3787
Cu and Tl salts, spectral lines attributable to exciton in, 2099
CuFeS₂, rectifying and other properties of, 164
Cu₂O, contact phenomena observed with, 3441
crystal growth at high temperature, 2799
in Cu₂O-Cu system, effect of oxidation temperature on conductivity of, 159
excitation spectrum of excitons in, 3104
exciton absorption in, 1769
films, surface structure and contact potential difference of, 3106
intergrowth with Cu of, 3442
lattice defects and absorption of e.m. radiation by, 2446
occlusions of CuO in, 3105
surface conductivity of, 2117
current noise in, relative influence of majority and minority carriers on, 1111

- Semiconductors, current noise in, theory of, 480
 theory of $1/f$ spectral distribution of, 817
 cyclotron resonance in, theory of, 3421
 degeneracy of electron gas in, review of work on, 2426
 with degenerate valence band, transport of heavy and light holes in, 2425
 diamond, electrical and optical properties of, 2784, 2785
 electronic band structure of, 3774
 experimental investigation of, 463
 theory based on 'defect bond' for, 2786
 with diamond structure modified by alloying or pressure, energy levels of, 839
 diffusion of electrons and holes down temperature gradient in, 1079
 drift-mobility measurements on, diffusion effects in, 2777
 effect of magnetic field on, theory of, 2100
 effects of particle and γ radiation on, 2034
 effects of pressure on, 2424
 electron mobility of, correlation with heat of formation of, 3418
 energy gap of, determination from diffuse reflection spectra, 2101
 field emission from, theory of, 717
 fluctuations of numbers of electrons and holes in, calculation of, 793
 formation of p - n junctions by solute redistribution during solidification in, 1758
 GaSb, effects of fast-neutron bombardment in, 1770
 Ge, absorption of 39-kMc/s radiation in, 3100
 acceptor levels in, theory of, 808
 action of etchants on, 2106
 amphoteric impurities in, 1763
 as anode in electrolyte, experimental investigation of, 3785
 avalanche breakdown in, 471
 barrier-layer photoelectric effect in, influence of diffusion length and surface recombination on, 614
 carrier-deficit phenomena in, 1096
 carrier lifetime in, temperature dependence of, 3098
 conductivity of, effect of surface treatment on, 1448
 cyclotron resonance in, observation of quantum effects in, 1093
 cyclotron resonance of holes in, theory of, 1092
 diffusion of Sb, As and In in, 809
 dislocations in, electrical properties of, 3428
 along grain boundaries, 1761, 1762
 microscope observations of, 466
 theory of, 3427
 doped, with Au, properties of grain boundaries in, 469
 with Cu, recombination and trapping in, 3781
 with Mn, photoconductivity in, 3435, properties of, 1091
 with Ni, carrier capture probabilities in, 1764, impurity-type conduction in, 2792
 doubly charged impurity sites in, experimental investigation of, 3430
 effect of gamma radiation on, 3438
 effect of heat treatment on charge carriers in, 2104
 effect of heating on, lifetime of minority carriers in, 2794
 effect of magnetic field on, experimental investigation of, 2114
 effect of plastic deformation on optical properties of, 154
 effect of pressure on electrical properties of, 1452
 effect of water vapour on current at p - n junctions in, 3433
 elastic constants of, X-ray investigation of, 475
 elastoresistance of, temperature dependence of, 1450
 electrical properties at low temperatures of, 153
 electrolytic etching technique for revealing junctions in, 473, 2444
 electrolytic-stream etching technique for, 2797
 electron mobility in, field dependence of, 3782
 energy-band structure deduced from magnetic data, 472
 energy-level calculations for, corrections for complex band structure in, 470
 etching at grain boundaries in, 1446
 etching rate of, experimental investigation of, 1445
 evaporated films, structural changes due to impact of electron beam on, 811
 excess-current noise in, 1454
 Faraday rotation of microwaves in, 1098
 features revealed by electron-microscope examination of etched surfaces, 1447
 filaments, spectrum of excess noise in, 2445
 galvanomagnetic properties of, 155
 growth of crystals from germane, 3777
 growth twins in, 3101
 hole trapping after electron bombardment in, 3780
 infrared absorption in, 2110
 junction formation by melt-quench process in, 1453
 longitudinal photomagneto-electric effect in, 1449
 magnetic-susceptibility study of, 1451
 minority-carrier extraction in, 1443
 minority-carrier lifetime in, effects of dislocations on, 2440
 Nernst effect in, 3437
 noise in, Hall-effect investigation of, 1101
 n -type, magnetic susceptibility of, 2107
 magnetoresistance of, 3783
 mobility of electrons in, 2111
 oriented, Hall effect in, 2112
 photoelectric emission from, 2754
 photomagneto-electric effect in, saturation of, 2113
 plastic flow in, delay time of, 2443
 p - n junctions, obtained by pulse heating in, 3434
 temperature dependence of photocurrent in, 1097
 water-vapour-induced current on, 807
- Semiconductors, Ge, p -type, effect of neutron bombardment on, 468
 precipitation of Cu in, 1090
 production of single crystals by zone-levelling technique, 3102
 radioactive isotope Ge⁶⁸, observations of disintegration of, 3784
 rate-grown junctions for h.f. transistors, 467
 recombination in, photoconductance-decay method for studying, 810
 at thermal acceptors and donors, 2105
 recovery from effects of Cu contamination in, 1094
 removal of Cu from, 1444
 resistance of, effect of contact pressure on, 1095
 variation in magnetic field, 2796
 self-diffusion in, 3429
 single crystals, direction of slip in, 1099
 solubility and diffusion of Ni in, 3779
 surface conductance of, effect of pulsed fields on, 1768
 surface phenomena in, review of, 2108
 surface potential of, effect of water vapour on, 3097
 surface preparation and resistivity measurements on, 1100
 surface properties of, 3431
 surface reaction on, 3778
 surface recombination in, in electric field, 3099
 relaxation effects in, 2442
 surface recombination velocity in, determination from infrared absorption of, 2109
 effects of surface potential and ambient atmosphere on, 2441
 photoelectromagnetic method of investigating, 1766
 surface states on, rectification characteristics as evidence of, 1767
 thermal acceptors introduced during quenching of, 1765
 thermal conductivity of, 474
 thermally induced acceptors in, 2793
 thin films of, crystal structure of, 2459
 trap activation energies in, 3432
 work function of, temperature variation of, 2795
- Ge and Ga, L spectra of, 3436
 Ge and others with diamond structure, characteristics of dendritic plates of, 156
 Ge and Si, calculations based on warped energy surfaces for, 1759
 chemical interactions among defects in, 3092
 crystals, cutting technique for, 1441
 dispersal of hydrogen in, 3776
 effect of one impurity on solubility of another, 2787
 infrared absorption and oxygen content in, 2433
 ionization by collision in, 2436
 junctions, effect of water vapour on conduction at, 805
 electron-voltaic effect produced by β particles in, 2437
 minority carrier lifetime in, effect of dislocations on, 2435
 optical absorption of, 465
 photoconduction in, 772
 physics of, 806
 pulled single crystals, defects in, 3775
 shaping by electrolytic etching of, 2432
 surface states in, 2434
- Ge-Si alloys, cyclotron resonance in, 1456
 experimental investigation of, 812
 galvanomagnetic effects and energy surfaces in, 3786
 magnetoresistance study of, 1455
 Ge-Si and other alloys, preparation by electrolysis of, 3103
 grain-boundary effects in, 3086, 3764
 graphite, effect of neutron bombardment on, 3424
 magnetic susceptibility of, theory of, 1113
 photoelectric emission from, 771
 review of investigations on, 803
- grey tin, Hall-effect measurements on filaments of, 3795
 doped with Mn, experimental investigation of, 478
 Hall constant of, saturation value of, 801
 Hall effect in, measurement of temperature variation of, 3155
 and magnetoresistance of, apparatus for measurement of, 3444
 high-conductivity, with quasi-metallic properties, theory of, 2094
 history of development of, 797
 'hot-electron' problem in, 464
 impurity scattering in, 2103
 impurity traces in, comparison of methods for determination of, 796
 impurity-type, activation energy of, theory of, 1749
 luminescence and conductivity of, statistical-kinetic theory of, 821
 magnetic susceptibility of charge carriers in, 1747
 plasma oscillations in, 1681
 theory of, 3416
- InAs, pressure dependence of electrical properties of, 1771
 InAs and InSb, effective electron mass in, 3793
 infrared absorption in, theory of, 794
 infrared Faraday effect in, 1022
 infrared reflectivity of, measurements of, 1077
 injected charge carriers in, solution of transport equations for, 1439
 InP and GaAs, preparation and properties of, 3107
 InSb, carrier mobility in, 3443
 effect of pressure on, 161, 162
 effect of pressure on Hall coefficient and resistivity of, 3794
 effective mass of electrons in, 815
 effects at grain boundaries in, 2804
 effects of illumination and magnetic field in, 2429
 elastic constants of, 2802
 electrical properties at low temperatures of, 160
 galvanomagnetic effects in, 477

Semiconductors, InSb, high-purity, measurements of conductivity and Hall coefficient of, 1772
infrared absorption in, 814
interpretation of, 2119
lifetime of added carriers in, 1773
low-temperature conductivity of, measurements of, 2803
magnetic resonance in, 1108
magnetic susceptibility of, 163
magneto-resistance anomalies in, 2805, 2806
optical properties at $20\text{--}200\mu\lambda$, 2118
preparation and determination of carrier masses for, 3108
purification of, 2808
recombination radiation from, 2807
single crystals, patterns observed on melting, 1774
thermoelectric power of, 813
thermomagneto-electric effects in, 2120
InSb and GaSb, nuclear magnetic resonance in, 1107
intrinsic, degeneracy in, graphical treatment of, 460
ionic, Hall effect in, theory of, 1757
irradiation effects in, survey of, 457
lattice scattering in, theory of, 148
lifetime of excess current carriers in, 2098
metal contacts on, rectification properties of, 157
metal nitrides, production and electrical properties of, 1102
MgO, conductivity induced by electron bombardment in, 158
sign of photo-induced charge carriers in, 2115
Mg₂Sn, properties of, 1104
micromanipulators for use in research on, 2811
minority-carrier lifetimes in, measurement of, 147
modulated-light-spot method for determining, 1081
mobility of minority carriers injected by light in, experimental determination of, 1082
multi-electron theory of, 3415
negative magneto-resistance effect in, 3413
negative photo-effects in, 1754
Nernst effect in and thermoelectric power of, 3766
NiO, thermomagnetic study of, 2454
NiO and related compounds, relation of magnetic structure to conductivity of, 462
noise in, distribution function of, 818
theory of, 3796
n-p junctions in, V/I characteristic of, 2427, 2775
n-type, lifetime of holes in, 1080
optical transitions at impurity centres in, theory of, 3770
organic, experimental and theoretical investigation of, 1457
with parallel junctions, analysis for transport of carriers in, 1750
PbS, a.f. current noise in, 1109
intrinsic resistivity of, determination from measurements on *p-n* junctions, 816
PbSe, PbTe and PbS, carrier lifetimes for photon-radiative recombination in, 2121
photomagneto-electric effect in, 2780
for photovoltaic conversion of solar energy, choice of, 3769
p-i-p structures, negative V/I characteristic of, 2776
p-n junctions in, frequency variation of shot noise in, 2123
influence of growth rate and stirring on, 3765
theory of current flow in, 3087
radiative transitions in, 798
recombination at dislocations in, 461
rectification at *n-p* junctions in, theory taking account of space-charge region in, 2122
research in, symposium at Ottawa, February 1956, 2778
resistivity of, microwave measurement of, 2158
4-probe apparatus for measurements on, 2476
resistivity and carrier lifetime of, modified Q -meter method for measuring, 3824
resistivity and Hall-coefficient measurements on, 201
scattering of carriers by charged impurities in, 149
Se, absorption edge of, temperature dependence of, 3423
conductivity measurements on, 2782
electron-diffraction study of crystal structure of, 2102
influence of light on absorption of e.m. radiation by, 2431
possibility of combination with halogens, 802
Se and Te, X-ray absorption study of, 1440
secondary-emissive, Ni-Be and Ni-Mg for use in nonlinear resistors, 800
Si, adsorption of NH₃ on, 3426
avalanche breakdown at junctions in, emission of light associated with, 3096
carrier lifetime in, measurements of, 3094
diffusion of donors and acceptors in, 3095
doped, with As, paramagnetic resonance in, 3425
with B, electrical properties of, 1442
with In, optical-absorption and photoconduction measurements on, 150
drift mobility of minority carriers in, 2790
edge dislocations in, infrared photographs of, 2438
elastic constants of, X-ray determination of, 152
electron multiplication in, theory of, 3093
impurity levels in, studies of infrared absorption due to, 1086
noise in, effect of illumination on, 1089
n-type, trapping of holes in, 1087
p-n junctions in, luminescence at breakdown voltage in, 1088
p-type, lifetime of electrons in, 1085
radiation resulting from recombination in, 2789
resistivity of, modified 4-probe method for measurement of, 3138
spin resonance of impurity atoms in, 151, 1760

Semiconductors, Si, spiral etch pits in, 2788
surface recombination velocity of, technique for reducing, 2439
use of metal hydrides as fluxes for soldering to, 3818
SiC, energy-band structure of, computations of, 2791
single-crystal, densities in relation to imperfections in, 838
solar-energy converters using, 3538
surface barriers at contacts between, 3410
surface conditions of, theory of, 146
surface conduction in, effect of adsorbed gas on, 1672
surface phenomena in, conference on, 3768
surface potential and charge distribution of, determination from variation of conductance with field, 1078
surface recombination velocity of, determination based on photo-magneto-electric effect, 3088
Te, Nernst-Ettingshausen effect in, 1756
Te-Se liquid solutions, temperature dependence of conductivity of, 3419
thermal characteristics of, measurement of, 1755
thermal conductivity of, 799, 3089, 3090
and thermoelectric power, 3771
thermocouples using, 2430
thermoelectric effect in, effect of reverse magnetic field on, 3772
theory of, based on 'many-valley' energy model, 2423
survey of problems in, 3420
theory of h.f. conductivity in, 3411
TiN and TiC films on SiO₂, 2447
transistor action in, origin of, 1458
transport properties of, kinetic-theory derivation of, 2420
unipolar conduction at boundary with metal, 791
use in thermoelectric cooling devices, 3224
use in thermoelectric generators, 3227
zinc blende and InSb, charge-carrier mobility and piezoelectric properties of, 2116
ZnAs₂, preparation and properties of, 2800
ZnO, conductivity at surface of, experimental study of various influences on, 1105
ZnS, adsorption and surface potential of, 3788
ZnTe, electrical properties of, 3439
zone melting, by application of temperature gradient, 1142
conditions for incorporation of volatile impurity elements in, 819
using electron bombardment, 2147
using magnetic-field support for, 1775
zone refining, matrix method for determining concentrations in, 820
Servomechanisms, (See also Control systems)
for digital data transmission, 1553
with distributed parameters, stability criteria for, 992
nonlinear, dual-input describing function in analysis of, 3223
frequency-response analysis of, approximate method for, 56
on-off, determination of change-over time for, 3222
for pulsed radar systems, stability and time response of, 269
sampling, application of pulse transfer function to, 267
2-speed, using magnetic amplifiers, 1552
Signal generators, (See also Generators; Oscillators)
a.f., tuning-fork controlled, 863
for colour-television testing, 3834
pulse, using transistors, for testing radar sets, 2496
for radio-receiver testing at frequencies up to 4 kMc/s, 2841
sine-wave, very-low-frequency, using rotating probes in electrolyte cell, 223
for television testing, 1489
3-phase, RC, wide-band, for network testing, 1159
Signals, with limited spectrum, possibility of extrapolation to $t > 0$ for, 2216
with limited spectrum and duration, analysis of, 1206
Skin effect. See Conduction.
Solar activity, coronal, relation to geomagnetic disturbances of, 2042
eruption on 23rd Feb. 1956, effect on atmospherics of, 2715, 2716
effect on radio propagation of, 2717
flares, observations of, accuracy and classification of, 1398
index based on ionospheric measurements for, 1397
prominences, and geomagnetic disturbances, 1399
Solar eclipses, effects on E-layer and geomagnetic field, 1716
effect on E_s layer of, 115
effect on geomagnetic field of, 416
effect on propagation of atmospherics, 1400
intensity of atmospheric radiation at 1μ and $0.71\mu\lambda$ during, 1705
investigation of atmospheric ozone during, 2374
and ionosphere, symposium on, 742
20th June 1955, ionospheric observations in India during, 2514, 2732
25th Feb. 1952, effect on ionosphere of, 3377
interpretation of ionospheric observations during, 1412, 3378
30th June 1954, effect on geomagnetism of, 107
effect on ionosphere at Ronie of, 3732
effect on s.w. propagation of, 3858
ionospheric observations in Norway during, 3379
tilts in ionosphere observed at Slough during, 2060
Solar radiation, r.f., at cm λ , dependence on position of active centres, 411
during eclipse, measurements at Byurakan of, 2370
interferometer aerial array at Nançay for investigation of, 3644
at 1 m λ , observations at Cracow during eclipse of 30th June 1954, 3363
at 1.5 mm λ , observations of, 1704
at 3 mm λ , observations of, 740
at 3-4 kMc/s, observations in Japan during eclipse, 2043
at 21 cm λ , distribution over quiet sun, 1706

- Solar radiation, r.f. during eclipse, at 60 cm λ , distribution over quiet sun, 1707
 at 60 cm and 1.5 m λ observations during eclipse of 30th June 1954, 3719
 at 200 Mc/s, elimination of extraneous disturbances in observations of, 741
 ultraviolet, investigation of local sources controlling E and F₁ layers, 412
- Solar system**, magnetic field in vicinity of, effect on particle trajectories of, 737
- Soldering**, importance of contact angle in, 1479
 to Si, use of metal hydrides as fluxes for, 3818
- Sound**, (See also Absorption; Acoustics; Diffraction; Ultrasonics)
 absorbers, membrane-type, measurements on, 2606
 attenuation by ear protective devices, measurements using noise band or pure tones, 3618
 intensity measurements, anomalous behaviour of Rayleigh disk at high frequencies, 2603
 condenser-microphone equipment for, 3605
 interaction of waves propagated in mutually perpendicular directions in water, 1939
 loudness, measurement of, and relation to sound intensity, 654
 rating-scale method for comparative measurements of, 1292
 re-determination of equal-loudness relations, 3271
 of complex tones, significance of 'frequency group' for, 2944
 of steady noises, 1604
 low-pass filters for protecting the ears, 965
 measurements of, design and testing of earmuffs for, 1297
 momentum of, theory of, 1272
 pressure measurements in water, using capacitance-vibration method, 964
 propagation of, in conduits, attenuation resulting from heat conduction in, 1279
 in fluids, exact equations for, 1276
 in medium with temperature gradient, 308
 in ocean, effect of turbulence on, 2931
 between parallel plates, theory of, 1601
 phenomena in, visual display using schlieren method, 3621
 in solid bodies, conference at Göttingen on, 2271
 in thin cylindrical shell, 1275
 in thin elastic shells, 1274
 in tubes, analysis for, 2
 in turbulent atmosphere, 307
 underwater, continuous-tone reverberation in, 643, 644
 in upper atmosphere, theory for, 2046, 2721
 in water, effect of dissolved air on, 2935
 pulses, for acoustic measurements, use of loudspeakers for generating, 3267
 finite-amplitude, propagation and reflection of, 2599
 propagation of, in dispersive medium, 1931
 14.5-ke/s, propagation of, in sea, 1277
 radiation of, from plate oscillating in its own plane, 1935
 force on obstacle in cylindrical field, 2936
 from vibrating wedge, 306
 radiators of, BaTiO₃, annuli operating in radial mode as, 1937
 disks operating in thickness resonance as, 1936
 collinear array of cylinders, radiation impedance of, 3
 dipole, rotating, analysis for, 3266
 directional, analysis of radiation characteristics of, 646
 using circular arrays, theory of, 2937
 directivity patterns of, computation of, 1933
 line, effect of progressive phase variation along, 1280
 plane, directivity obtainable with, 1281
 relation between amplitude distribution and radiation pattern of, 2600
 reflection of, from corrugated surface under water, 1938
 from irregular surface, 3602
 Fourier-transform method for, 2938
 nonspecular, from sinusoidal surface, 5
 from periodic surface, variational method for, 2698
 from surface of nonuniform impedance, 3601
 reflection and transmission of, by moving medium, 1273
 reinforcement systems for auditoria, 1605
 scattering of, by intersecting beam, frequency components produced by, 2939
 by thin plate held in rigid screen, 309
 sensitiveness of air and water jets to, 3603
 tone wobbling by reflection from rotating target, 3268
 transmission of, through walls, loss due to, automatic measurement of, 655
 velocity of, in water, temperature coefficient of, 2934
- Sound ranging, underwater, survey of, 2742**
- Sound recorders**, battery-operated, Japanese, using transistors, 3204
 magnetic, mechanical aspects of, 2260
- Sound recording**, magnetic, absolute measurements in, 318
 reference-level test film for, 2610
 for stereophonic reproduction, 1609
 visual demonstration of tape magnetization for, 2612
 wow and flutter in, measurement of, 13
- Sound reproduction**, effect of amplifier phase shift on quality of, 1606
 equipment exhibited in London, 1956, 2609
 from fine-groove records, B.B.C. equipment for, 2279
 magnetic, field-strength distribution in head gap, 2611
 time regulator for, 2952
 needles for, sapphire and diamond, comparison of playing life of, 1610
 nonlinear distortion in, threshold of audibility of, 3274
 quality in f.m. v.h.f. transmission systems, 3881
 stereophonic two-channel systems for, 968, 1946, 2607
- Spectrographs**, microwave, improvement of sensitivity by increasing klystron power, 1387
 using Stark cell, improved design of, 1389
- Spectrometers**, a.f. using only six filters, 2174
 microwave, parallel-plate, 2478
 r.f. analysis of response to repeated pulses, 3153
 based on 2-cavity klystron, for nuclear-resonance observations, 1696
- Spectrometry**, mass, applications of electron optics to, 1846
- Spectroscopy**, in far infrared, interferometer technique for, 3687
 microwave, absorption in compressed oxygen, 734
 cavity resonator with molecular beam for, 402
 cavity resonator with NH₃ beam for, 403, 3710
 increase of Q factor by regeneration in, 348
 based on coherent radiation from pulse-excited gases, 1037
 hyperfine structure of NH₃, observed in 'maser' oscillator, 1693
 production of narrow resonance lines using pillbox cavity, 92
 report of Geneva conference on radio-frequency physics, 3031
 technique and results of, 2156
 Zeeman effect in NH₃ inversion spectra, 93
 r.f. for study of nuclear magnetic resonance, 1694
- Speech**, bandwidth compression systems for, 2605
 'vobanc', 2943
 communication by, symposium on, 3608
 effect of voicing on relative duration of vowels and consonants, 8
 formant frequencies of, automatic electronic devices for determining, 1944
 formant information of, bandwidth and channel capacity for transmission of, 3613
 intelligibility of, effect of amplitude limiting on, 3614
 effect of distortions on, 3607
 with phase-reversal switching, 2942
 recorded simultaneously at ear and mouth, 1289
 intelligibility of Japanese over transmission system, 312
 recognition of words in telecommunication practice, 652
 synthesis of vowels by resonant circuits, 651
 synthetic, experiments on, 9
 transmitted by electroacoustic systems, intelligibility of, 313
 vowel articulation, tests on 3-number system of specification for, 653
 waveform and intelligibility, quantizing circuits for investigating, 1540
- Stability**, of systems with distributed parameters, analysis for, 992
- Stabilization**, of low voltages, Ni-Cd cell for, 1220
- Stabilizers**, mains-voltage, fast-acting, 1870
 voltage, a.c., using temperature-limited diode, 2887
 direct, for range 0-300 V, 3890
 effect of heater-voltage variations on, 576
 electronic, design of, 273
 series, with compensating networks, 575
 using feedback circuit regulated by thermistor bridge, 913
 impedance/frequency characteristics of tubes for, 640
 using saturated choke, 914
- Standard-frequency transmissions**, accuracy of, (D)514
 GBR, 16 kc/s, measurements in New Zealand on, 1482
 monitoring at N.P.L., (D)516
 MSF, expressed in terms of Cs resonance, 2839
 Rugby equipment for, 515
- from WWV and WWVH, improvement of accuracy of, 2838
- Standardization**, of electronic circuits, N.B.S. work on, 2324
 of electronic components, 32
- Standards**, on letter symbols for semiconductor devices, 56 I.R.E. 28.S1, 3241
 for measurement of interference from broadcast and television receivers, 56 I.R.E. 27.S1, 3531
 for measurement of pulse quantities, 55 I.R.E. 15.S1, 517
 for measurements on a.f. systems, 56 I.R.E. 3.S1, 2475
 on symbols in communication engineering, German draft DIN1344, 2270
 on symbols for feedback control systems, 55 I.R.E. 26.S1, 571
 on terminology, for electronic computers, 56 I.R.E. 8.S1, 3657
 for facsimile, 56 I.R.E. 9.S1, 2889
 for feedback control systems, 55 I.R.E. 26.S2, 1173
 for microwave valves, 56 I.R.E. 7.S1, 1905
 for storage tubes, 56 I.R.E. 7.S1, 2264
 for t.r. and a.t.r. tubes, 56 I.R.E. 7.S3, 3594
- Standing-wave detectors**, coaxial-line, correction for eccentricity in, 858
 using helix-line element, 1493
 for low power levels, at $\frac{1}{2}$ -2 cm λ , using directional coupler, 215
 microwave, with sliding load, 3489
 slotted-section, theory and technique of, 859
- Stations**, (See also Broadcasting; Television)
 for communications, coastal, in Denmark, 3221
 s.w., transmitting, British Post Office, Rugby, 569, 2538
 German Post Office, Elnshorn, 3535
- Storage systems**, (See also under Computers)
 for pulses, use of nuclear-spin-echo technique for, 1038
- Studios**, See Acoustics; Broadcasting; Television.
- Sun**, magnetic field of, 2714
 magnetic field surrounding, and cosmic rays, 1699
 maps of, cooperative service for regular production of, 2041
- Sunspot cycle**, correlation with geomagnetic variations of, 2720
 decreasing phase 1948-1954, measurements at Rome on, 1047
- Sunspots**, east/west asymmetry of distribution of, 1396
 identification by means of faculae, 101
 magnetic field of, dynamo theory of, 1401
 relative numbers, constancy of scale of, 3720
- Superconductivity**, in Sn, observations at mm λ of, 1356
 in Sn, In and Tl, paramagnetic effect in, 3446

- Superconductors**, Al, min-wave absorption in, experimental investigation of, 2354
electron emission from, experimental investigation of, 3340
microwave absorption in, theory of, 2355
- Switches**, (See also Circuits, switching)
magnetic, design of in relation to production, 1249
mercury selector, generation of fast-rise pulses by, 3291
microwave, using ferrite rod in cavity, 679
'opto-electronic', using solid-state image intensifiers, 931
t.r., electrode deterioration in 'keep-alive' discharges in, 2252
instability in 'keep-alive' discharges in, 2251
transluxor multiple-aperture magnetic core, 1637
- Telecontrol systems**, French, on 175 c/s, 1187
radio, of tractor, 1517
weapon control, photoelectric data-coding device for, 1518
- Telegraphy**, alphabet coding system for, 1544
signalling systems for, 563
- Telemetry**, demodulator using recording system and f.m./p.f.m. converter, 3178
double-superheterodyne receiver for, 2526
f.m./f.m. system, bandwidth requirements for, 3851
frequency and sampling-rate requirements in relation to interpolation errors, 3506
for missiles, p.p.m. system, using transistor modulator, 3181
rate-of-spin indicator using photocell and transistor oscillator, 3182
6-channel recording system for, 3180
Russian bibliography for 1950-54, 869
survey of electronic data transmission technique for, 2189
transistor oscillator for, 2342
- Telphony**, articulation calculations for, development of Collard principle of, 3873
- Television**, (See also Aerials; Interference)
band-I, long-range reception in U.S.S.R., 3523
camera tubes, C.P.S. emitter, 591
photoconductive, for X-ray image intensification, 2864
inertia effects in, 2552
'scenioscope', 1228
storage type, resolution attainable in, 3547
for X-ray images, 1901
cameras, underwater, design of, 1226
variable-magnification systems for, 1598
using vidicons, for film pickup, 280
centre, Südwestfunk, detailed description of, 2895
closed-circuit multichannel distribution systems, 1874
colour, B.B.C. experimental transmissions, 917
choice of subcarriers for European system, 3542
compatible two-subcarrier system, 1224
c.r. tubes for, effect of magnetic deflection on beam convergence in, 3553
guns producing noncircular spots for, 3593
post-deflection-focus type, 3894
Type-21AXP22, improvements in, 3554
developments in, 1876
European system, frequency of colour subcarrier for, 1877, 1878
flying-spot 'vitascan' scanning system for, 3228
gamma and matrix transmitter correction circuits for, 2232
in Great Britain, line standard for, 2898
kinescopes for, 3-gun, improvement of register in, 1567
N.T.S.C. system, description for nonspecialists, 580
principles of, 2548
transmitter unit for signal matrixing, 588
pedestal processing amplifier for studio operation, 3544
portable signal generator for, 3834
possible European systems in light of U.S.A. experience, 2891
progress in U.S.A., 581
receivers, 'apple' system, 3232, 3893
for British N.T.S.C. system, 1882
chrominance circuits for, 3231
design of, review of U.S.A. practice in, 1881
rejection circuit for sound channel in, 1993, (D)2664
sequential system used at Moscow experimental station, 582, 1560
significance of colorimetry-standards revision for, 1558
station installation of, 1231
studio installation, C.B.S., New York, 1232
studio switching equipment for, 2554
subcarrier synchronization in, 3550
survey of systems for, 1559
techniques for film transmission, 3546
trichromatic systems, differential chromaticity thresholds in, 583
in U.S.A., survey made in April 1955, 1875
use of signal harmonics to obtain colour purity in, 3549
conference in Leningrad, 1954, 277
coverage of Gt Britain, 285
use of satellite stations in U.S.A., 2553
delay equalization method for, 2240
detectors, synchronous, for asymmetric-sideband systems, 1566
differentiating equalizer for, 279
distribution of video signals, amplifier for, Chasseral type, 916
of films, with illumination compensation for variation of film density, 589
projection technique for, optical multiplexing in, 3233
- Television, of films, projector for use with vidicon tubes, 1225
scanners for, with optical compensation by rotating prism, 1227
in Germany, review of, 278
image formation and analysis in, 'aperture theory' of, 1570
industrial, in open-cast mining, 585
Italian coaxial transmission network, 262
links, cable, Broadcasting House-Crystal Palace, 3891
delay equalizers for, design calculations for, 2227
distortion correction in, 577
for outside broadcasts, 2545
video-signal, use of equalized telephone lines in, 275
21-Mc/s network at Hamburg, 3541
radio, in Canada, 2890
din-A, Cologne/Frankfurt/Neustadt, 2546
Japanese, using reflex circuit with travelling-wave valves, 1212
u.h.f., Independent Television Authority midlands, 2228
in Netherlands, development of transmission network, 3235
networks, British I.T.A., 2555
noise in, visibility of 1234
outside-broadcast operation, synchronization of various picture sources in, 283
phase equalization in, 584
phonevision subscription system, 1223, 2547
pick-up apparatus, black-level control in, 1880
picture photography in, circuit producing single-scan picture for, 586
picture quality in, aperture-compensation methods for improvement of, 1885
effect of delay distortion in vestigial-sideband system on, 2984
effect of statistical fluctuations on, 2897
influence of optical system on, 1233
influence of optical system on modulation depth, 596
picture tubes, photoelectric colorimeters for measurements on, 1229
receivers, aerial filter for use with band-III converter, 2236
all-standards, with continuously variable tuning, 1563
band-III converter without r.f. stage for, 1564
circuits and components for 90° scanning, 592
deflection circuits using multiresonators for, 2893
design for reduction of fire hazards due to, 3205
diode circuits for restoring d.c. component in, 1883
frequency stability of local oscillators in, 593
line deflection circuit for, self-oscillating, 282
parasitic radiations from, measurements in Italy on, 2237
with phase-corrected i.f. amplifier, 594, 2235
r.f. phase and amplitude characteristics of, 2892
sampling detector for intercarrier sound, 3551
synchronizing-signal separators using transistors, 1565
U.S.A. models for 1955-56, trends in 2234
vision a.c. system for, 281
4-standard, 3230
reception, band-III, elimination of band I in, 2894
recording, cinematographic, studio technique for maintaining correct levels in, 2549
suppressed-frame system used by B.B.C., 918
using 16-mm film with continuous motion, 919
using 35-mm film, 1561
relay system for local distribution of broadcast material, 1210
scanner, flying-spot type, for epidiascope, 2233
sound, multiple-pulse-time modulation system for, 2214
in Spain, plans for, 2230
standard British waveform, modification of, 920
standards, adopted in Uruguay, 2550
in different countries of the world, 3543
stations, B.B.C., Crystal Palace, 2896, 3895
Copenhagen, short description of, 1569
low-power, for U.S. armed forces, 1568
studios, B.B.C., Lime Grove, equipment at and operation of, 284
equipment at R.T.F., standardization of, 3556
for equipment testing and personnel training, 1884
lighting for, 2239
xenon arc lamps for, 2238
survey of service in U.S.S.R., 3219
in Switzerland, description of 4-station service for, 921
synchronization system using pulse coincidence without special levels, 1222
synchronizing signals, spectral structure of, 579
use of, for aerial navigation system, 762
test equipment for Belgian transmitters, 590
test pattern for, circuit methods for production of, 2231
testing technique for use during program, 587
test-signal generator for, 1489
transmission, test methods in Germany, 1879
transmission networks, for Europe, 274
u.s.w., Austrian, 1548
transmission systems, nonlinearity tolerances for, 595
wide-band microwave radio links for, 578
transmitters, video-signal change-over switches for, 2551
van for outside broadcasts, N.W.D.R., 1230
video testing based on transient response in, 2474
- Test equipment**, (See also individual instruments)
voltage/current characteristic tracer, pulse-operated, 862
- Thermistors**, application in instruments for measurement of temperature etc., 3501
equivalent circuit for very-low-frequency operation, 2315
impedance at low frequencies of, 678
oscillations in, analysis for, 696
stability of, 1977

- Thermistors, subcutaneous temperature measurement by, 3840
turnover in characteristic of, investigation of, 994
- Thermocouples**, using semiconductors, 2430
- Thermodynamics**, mathematical study of Boltzmann's equation, 1668
- Thermoelectric effects**, Benedicks single-material effect, measurements of, 712
note on formula for, 713
cooling, theory and experimental results for, 3224
in CuO and Cu₂O in powder form, 3111
in magnetic field, thermodynamic theory of, 1390
- Thermoelectric generators**, using semiconductors, 3227
- Thermoelectric properties**, of Bi-Te alloys, 166
of Bi₂Te₃, 1083
of CrSb₃, 3773
of Cu, effect of lattice imperfections on, 1112
of Sb-Te alloys, 2126
- Thermomagnetic effects**, in metals in strong fields, 3038
- Time**, (See also Clocks)
and frequency, units of, proposed new relation between, 1481
intervals, marker for, using pulse generator, 864
μs, time/pulse-height converter for measurement of, 2835
standards, atomic and astronomical, 2471
and frequency standards, fundamental requirements for, 3823
unit of, definition of, 200, 513
problems involved in, 2834
physical definition of, problems involved in, 1153
reconciliation of atomic and astronomical standards, 3469
- Time signals**, broadcast from WWV and WWVH, improvement of accuracy of, 2838
generator for, using frequency divider with decade counter tubes, 1657
- Timebases**, with sweep times of 40 μs-3 μs, using secondary-emission valves, 698
- Training**, centre, B.B.C. engineering, outline description of, 3597
- Transactions, Inst. Radio Engrs**, Index 1955, 2594
- Transducers**, BaTiO₃, underwater, radiation impedance of, 4
calibration of, impedance-measurement method for, 3600
composite crystal and backing plate, friction-controlled, 3599
electroacoustic, limits of efficiency of, 2601
high-power, variable-frequency, performance of, 2601
quartz, ultrasonic, efficiency of operation in liquids, 1602
- Transducers, a.c.-controlled**, theoretical and experimental investigation of, 2317
self-saturating, time constant of, 2318
subminiature, a.f., design of, 1975
- Transformers**, a.f., output, design for reduced weight and size, 2643
for 'ultralinear' amplifiers, design of, 677
double, geometrical quadrupole representation of, 1989
low-frequency, in amplifier feedback path, treated as minimum-phase-rotation networks, 1659
miniaturization of, by use of fluorochemical liquids, 1976
power, i.v., design chart for, 2312
pulse, using rolled exponential line, 993
subminiature, a.f., design of, 1975
wide-band, design data from filter-network theory for, 338
using tape-wound toroidal cores, 2311
- Transistors**, (See also Semiconductors; Valves, crystal)
a.f. pre-amplifier using, 1346
alloy-junction, avalanche type, 293
base thickness of, etch method for determining, 2902
effect of gases and water vapour on characteristics of, 2243
Ge, *p-n-p*, measurements on, 2903; using high-emitter-efficiency alloys, 2563
technique for producing plane junctions in, 2562
production and properties of, 2242
surface breakdown of, 2561
applications of, in d.c. converters, 573
in *Q*-multiplier circuits, 1013
in radiation monitors, 3175
characteristics of U.S.A. types, 1239
circuits using, survey of, 1984
comparison with vacuum-tube valves, 2244
composite, high- α , properties and circuit applications of, 927
cut-off frequency of, use of neutralization for improvement of, 1345
in d.c./a.c. converters, 2884
design of, in relation to production, 1249
equivalent circuit of, passive quadrupole representation, 928
representing high-frequency operation of, 2904
field-effect, design and performance of, 1240
gain of, network theory of, 1241
diffused-base, 1891
Ge and Si, surface-barrier, automatic etching in production of, 3242
generalized admittance and impedance matrices for, 2327
based on grain-boundary effects, 3086, 3764
in Japanese equipment, 3204
junction, with $\alpha > 1$, operating characteristics of, 1893
with auxiliary collector for switching purposes, 3244
current-amplification factor of, variation with emitter current of, 294
effect of X rays on operation of, 1245
equivalent circuit of, 607
h.f. power gain of, 3566
influence of base-layer impurity distribution on, 1244
measurement of *h* parameters of, 1483
noise in, measurements at 7-50 kc/s of, 606
operation and electronic theory of, 924
'punch-through' voltage of, temperature variation of, 925
quadrupole behaviour of, and valves, 2001
- Transistors, junction, shot noise in, 600
temperature coefficient of, 295
test equipment for, 526
use in power amplifiers, 366
4-terminal-network parameters of, 3563
letter symbols for, standard 56 I.R.E. 28.SI on, 3241
microphony caused by vibrations of leads of, 3246
multistable circuits using, 37
noise in, 616, 1894
p-n-n+ junction, high-gain, production and properties of, 3565
p-n-p junction, noise in, 1246
propagation of charge pulse in, 3243
point-contact, aging in, use of Li-doped collectors for observing, 1242
effect of drift field on cut-off frequency of, 1577
negative-resistance regions in characteristics of, 1243
production of, experiments in Japan on, 3564
'step' and 'oscillation' phenomena associated with breakdown in, 603
power, self-bias cut-off effect in, 604
semiconductor physics of, 1458
Si, diffused-junction, 1890
fusion, developments in, 926
low-power operation of, 3898
n-p-n, current amplification factor of, improvement by surface treatment, 2439
p-n-p-n, manufacture and switching applications of, 3899
survey of characteristics and production of, 602
tetrode-type, experimental, for 1 kMc/s, rate-grown Ge crystals for, 467
transfer characteristics for transients in, 1892
- Transmission lines**, (See also Cables; Waveguides)
a.f., for programs, long-distance, German tests on, 14
coaxial, elliptic, theory of, 3631
inductance of, calculation of, 2953
pulse-handling devices based on, 60
T stubs for v.h.f. filters, calculation of, 1332
with continuous nonuniformities, synthesis of quadrupoles from, 2990
effects of longitudinal voltage and current on, 2614
exponential, tapered-strip, for pulse transformer, rolled construction of, 993
helical, coupled, analysis of, 1612
dispersion in, 2284
theory of, 3276
reflection at changes of pitch in, 322, 662
theory of, 2954
helical strip in waveguide, theory of propagation on, 2955
impedance transformations for, logarithmic chart for, 1613
matching sections for, optimum taper for, 1953, (D)3278
microwave, bibliography of advances in 1954, 1952
laminated, theory of, 2613
nonreciprocal, application of electron plasma and other media in, 663
strip, electrolyte-tank investigation of, 2283
production and applications of, 975
symposium on, 1611
nonuniform, bibliography of, 2617
as impedance transformers, 664, 1614, 3277
with step transitions, use of Tchebycheff polynomials in calculations for, 3630
surface-wave, launching systems for, 974
measurements at 3.2 cm λ on, 16
parallel, exchange of energy between, 2615
radiation caused by diffraction by discontinuities on, 2616
rectangular-channell type, 2956
tapered, Dolph-Tchebycheff, design of, 976
uniform, propagation of transients on, analysis for, 3632
- Transmitter-receivers**, portable, R/T for 80- and 160-Mc/s bands, design and applications of, 1550
v.h.f. unit for, 1214
- Transmitters**, (See also Stations; Television)
a.m., h.f. filter design eliminating p.h.m. in, 922
method of deriving overall negative feedback in, 2556
broadcasting, unattended, review of techniques for, 1573
communication, automatic tuning system for, 3238
h.f., filter for eliminating harmonics in television band I in, 47
high-power, valve protection circuits using gas-filled valves for, 1235
spurious emissions from, measurement of, by directional-coupler method, 1811
15-kW 2-stage amplifier for, 3559
- Troposphere**, (See also Atmosphere; Wave propagation, e.m.)
r.f.-refractive-index chart for, determination from meteorological data, 2517
- Ultrasonics**, absorption of. See Absorption.
applications of, in industry, 1832
to measurement of elastic constants, 2177
to treatment of tumours, 2179
attenuation in water, measurements of, 1929
distortion of liquid surface due to, 1278
generated by electrostriction in liquids, 310
generators, effect of surrounding liquid on useful output of, 311
in geophysical prospecting, theory of, 1501
interferometer for measurement of velocity and absorption in liquids, 226

- Ultrasonics, irradiation of nervous system by, investigation of effects of, 2178
- machining of brittle materials by, 1170
 - measurements, of elastic constants by, 867
 - using electron-acoustic image converter, 2184
 - mechanical pressure exerted by and absorption of, 1940
 - optical refraction for investigation of, 1941
 - photographic method for rendering waves visible, 963, 2273
 - propagation, in shallow-water sediments, 1930
 - in suspensions, experimental investigation of, 2274
 - radiation pressure in, theory and measurement of, 648
 - transmission of, control by BaTiO₃ shutter, 645
 - velocity of propagation of, in fused quartz and armco, 1131
 - interferometer for measurement of, 1285
 - in organic liquids, temperature variation of, measurement of, 6
 - vibrations of Si rods at 10-25 Mc/s, 2933
- Units**, electrical and magnetic, proposed 'système paritaire' for, 1354
- Giorgi system, and rationalization of electricity equations, 3327
- logarithmic, 'jot', for general use in science and engineering, 1665
- Vacuum gauges**, based on gas discharge in magnetic field, 848
- cold-cathode, Penning-type, c.r.o. method for optimum adjustment of, 440
 - extended-range, 3073
 - ionization type, determination of pressure by, 3391
 - with stabilized power supply, 2750
- Vacuum pumps**, diffusion-type, using freon 12, 3393
- ion type, with cold electrodes, characteristics of, 3748
 - molecular, rotary, experimental study of, 2752
 - theory of, 3075
 - vapour-type, ultimate vacuum obtainable in, 3074
- Vacuum technique**, analysis of gases at low pressure, 2078
- gettering, rates for rare gases, use of krypton-85 in measuring, 1733
 - use of Ti for, 1428
 - ionization method, experimental investigation of, 2751
 - leak testing, optical method based on emission spectra for, 766
 - outgassing of glass, 767
 - technology and applications of mercury in, 3392
- Valves**, (See also Cathode-ray tubes; Electron beams; Rectifiers; Transistors)
- acceptance inspection of, sampling methods used by French Post Office for, 2253
 - amplifier, quadrupole behaviour of, and transistors, 2001
 - analysis for space-charge-limited current between nonsymmetrical electrodes, 303
 - cooling arrangements for, 3290
 - crystal-diode, allowed Ge-In junction, capacitance measurements on, 1575
 - double-base, theory of, 3562
 - Ge, diffused-junction, manufacture of, 1237
 - effect of illumination on noise in, 290
 - flicker noise in, 1576
 - point-contact, forward characteristics of, 291, turnover in reverse characteristic of, 994, voltage-controlled attenuator using, 50
 - Russian types, 3239
 - spectrum of excess noise in, 2558
 - inductive component in impedance of, 599
 - influence of frequency on rectifying properties of, 1889
 - junction-type, shot noise in, 600
 - use as variable capacitance at u.h.f., 2559
 - PbS, experimental investigation of rectification in, 2560
 - p-i* junction, generating h.f. oscillations, 1888
 - p-n* junction, frequency-converter applications of, 3897
 - pulse methods for investigation of, 1236
 - speed of response of, 1574
 - point-contact, thermal effects in, 292
 - p-s-n* junction, influence of resistivity on blocking properties of, 2901
 - Si, junction-type Zener-voltage breakdown in, 923
 - microwave, noise in, (D)601
 - current rise in response to pulse voltage in, 3571
 - design of in relation to production, 1249
 - diode, coaxial, electron trajectories at 3 kMc/s in, 948
 - gas-filled, as computer storage elements, 1972
 - saturated, for voltage stabilizers, (D)1596
 - space-charge-limited, characteristics of, effect of cathode work function on, 1917
 - noise temperature of, 947
 - electron-multiplier, statistical study of multiplication in, 296
 - electron-wave, theory of, 2258, 2702
 - two-beam, effect of electron-velocity distribution in, 1250
 - envelope-potential build-up in, 2588
 - focused-beam, noise due to positive ions and secondary electrons in, 1256
 - gas-filled, corona-discharge, continuously controllable, 2927
 - diode, method for obtaining uniform characteristics in, 1264
 - electron-multiplier, 1922
 - hot-cathode, initiation of discharge in, 951
 - for switching purposes, firing time of, 953
 - as t.r. and a.t.r. switches, standard 56 I.R.E. 7.S3 on definitions for, 3594
 - triode, amplifier action of, 954
 - experimental investigation of types of discharge in, 2925
 - triode-matrix, as binary adder, 3261
 - triodes and tetrodes, current rise time in, 639
 - sensitivity and delay time of, 1921
 - Valves, gas liberated in, origin and elimination of, 2906
 - glow-discharge, for microwave control purposes, 1599
 - voltage-regulator, in d.c. coupling circuits, 692
 - impedance/frequency characteristics of, 640, 1920
 - running-voltage/current characteristics of, 952
 - running-voltage/temperature characteristics of, 1263
 - grid-cathode spacing in, optical method for determining, 2569
 - grid current in, analysis for, 2908
 - grid emission in, gold-plating techniques for inhibiting, 632
 - heptode, using frame grids, characteristics and applications of, 3262
 - klystron, adventitious a.m. in, analysis using Schlömilch series of Bessel functions for, 1592
 - amplifier, high-power, demountable, for X band, design and performance of, 944
 - frequency-multiplier, design and performance of, 2915
 - for medium-power c.w. operation, 1588
 - reflex, oscillator, Type-V X5023, 2579
 - recent types of, 3574
 - wide-range tuning of, in relation to a.f.c. problems, 3068
 - transverse current distribution in beam of, X-ray method for studying, 941
 - 2-beam, as frequency multiplier, 1255
 - magnetron, characteristics of, advance calculation of, 2910
 - c.w., 8-mm- λ , noise investigations with cantilever cathode, 1595
 - effects due to dense space charge in, 2575
 - incidental production of X rays by, 943
 - interdigital-line anode structure for, 1909
 - measurement of cavity Q factor of, 2493
 - missing-pulse tester for, 3498
 - mm- λ , Type-V X5027, 2580
 - multiresonator, theory based on cascade bunching for, 2577
 - space-charge distribution in cut-off state, 1584
 - split-anode, self-sustained electronic spokes in, 1587
 - theory of, 939
 - discussion on, (D)1586
 - theory of pre-oscillation state in, 938
 - variations of cathode surface temperature during operation, 3258
 - whole-anode, in cut-off state, plasma oscillations in, 1903
 - microwave, bibliography of advances in 1954, 1952
 - focused-beam, permanent magnets for, 1254
 - long-beam, analysis of noise in, 1593
 - interception noise in, 1594
 - minimum noise figure of, computation of, 3257
 - plasma-frequency reduction factors due to drift tube in, 3573
 - theory of, 619
 - standard 56 I.R.E. 7.S1 on definitions of terms for, 1905
 - noise in, 616
 - pentagrid, converter, characteristics and application of, 3590
 - pentode, current partition in, calculation of, 3589
 - power-type, method of determining characteristics of, 3237
 - use of transistor as anode load for, 3008
 - rating of, in abnormal ambient conditions, 937
 - reliability of, design and maintenance aspects of, 3247
 - reliable, French manufacturing and inspection techniques for, 3572
 - for government and industrial purposes, (D)617
 - Russian terms for, 1247
 - secondary-emission, flicker noise in, 3587
 - properties and applications of, 2919
 - shot noise in, theory of, 1581
 - use of correlation tensor in, 1582
 - stability of, influence of space-charge standing waves in, 1913
 - switching, travelling-glow-discharge, 1265
 - testing of, at Laboratoire Central des Industries Electriques, 2840
 - tetrode, u.h.f., beam power Type 6448, 635
 - thyatron, with controlled firing time, for d.c./a.c. inversion, 1556
 - current ratings of, dependence on firing angle of, 2265
 - grid-control circuit for, 2223
 - hydrogen-filled, experimental investigation of, 2926
 - reduction of threshold striking voltage of, 2341
 - transmitting, life of, factors affecting, 936
 - travelling-wave, applications of, 2257
 - backward-wave, amplifier, cascade-type, 624
 - M-type carcinotron, theory of, 3255
 - O-type carcinotrons, development of, 1904, 3576
 - beam focusing by periodic magnetic fields in, 621
 - with coupled helices, 1253
 - analysis for, 1612
 - with crossed electric and magnetic fields, analysis of modes in, 1585
 - delay lines with periodic structure for, theory of, 1907
 - design for amplification at high power levels, 1589, 2911
 - E and C type, limitations of, 1590
 - external-helix, conditions for oscillations in, 1591
 - French Post Office types, development of, 3575
 - with helical line, dispersion in, 2284
 - high-power, design of, 2570
 - interdigital lines for, effect of radiation from, 1908
 - Japanese types for 4-kMc/s band, 2576
 - large-signal operation of, analysis for, 3577
 - theory of, 2571
 - with light-weight permanent-magnet focusing, 1251
 - with magnetically-focused beam, space-charge-wave propagation in, analysis for, 3254
 - noise figure of, 622, 3579
 - nonlinear phenomena in interaction between beam and field in, 2914

- Valves, travelling wave, oscillator, with magnetic field, 'carmatron', 620
 periodic-magnetic focusing, use as microwave detectors, 2259
 periodic structures with transverse wires for, analysis for, 942
 phase distortion in, 2573
 survey of developments in, 2572
 transverse-beam, experimental results for, 3253
 theory of, 3252
 transverse-field, with periodic e.s. focusing, 1252
 2-helix, high-power, 2574
 for 3.2 cm λ , noise measurements on, 3578
 travelling-wave and 2-beam, graphical method for investigating, 2256
- triode, electron optics of, 634
 generalized admittance and impedance matrices for, 2327
 h.v. low-current types for special applications, 2261
 transmitting, Type-RS526, 120-kW, 3588
 u.h.f., lighthouse-type, double-ended arrangement for, 2589
 u.h.f., with velocity-modulated beams, space-charge effects in, 2909
 utilization conditions on French long-distance lines, analysis of, 2254
- vacuum-tube, comparison with transistors, 2244
- Vibrations**, of circular and elliptical plates, frequency equations for, 2272
 of diaphragm between parallel electrodes, 1270
 forced, of rigid circular plate, 1928
 of molecules and membranes, theory of, 2597
 of plates, analysis for, 962
 of rectangular plate with distributed added mass, 2930
 of shallow spherical shells, analysis for, 1271
 of strings, simple analysis for, 2929
 transient, excited by bow, 3270
 of systems with elliptic boundaries, analysis for, 961
 of triangular membranes, analysis for, 2598
- Voltage**, alternating, low, measurement of, by compensation method, 1487
 direct, low, measurement of, at low temperature using superconducting modulator, 518
 divider, with nonlinear element, 2490
 microwave measurement of quadrature components of, 2169
 peak, measurement of, diode circuits for, 1883
 ratio measurements using divider with dry rectifier, 203
- Voltmeters**. See Meters.
- Wattmeters**. See Meters.
- Wave propagation**, acoustic. See Sound; Ultrasonics.
 acoustic and e.m., reflection from irregular surfaces, Fourier-transform method for, 2938
 in stratified media, analysis for, 730
 focusing effects in, 729
 equation of, asymptotic expansions of solutions, of, 398
 magnetohydrodynamic, theory of 4 modes in, 733
 mathematical theory of, 2151
 reflection from periodic surface, 2698
 scattering cross-section of obstacle, 401
- Wave propagation, e.m.**, (See also Diffraction; Reception; Scattering; Television; Transmission Lines; Waveguides; Waves)
 atmospheric study of, 1196
 across boundaries, for flat earth, 541, 1848
 for spherical earth, 2191
 cm- λ , back-scattering from mixture of ice and air, 899
 self-interaction in plasma in magnetic field, 1691
 in conducting media, frequency dependence of, 2868
 determination of velocity of, 3515
 from dipoles near ground, analysis of transient fields in, 1851
 in dispersive medium, acoustic-analogy investigation of, 2365
 at double grids, 2696
 fading, in inhomogeneous atmosphere, 2869
 ultrasonic simulator for, 3191
 Faraday effect in plasma at 10 kMc/s, 732
 by forward scatter, survey of work at N.B.S. on, 2193
 ground-wave, assessment of field-strength calculation methods for, 891
 attenuation and phase constant of, 544
 in gyromagnetic medium, theory of, 2031
 in inhomogeneous atmosphere, analysis for, 545
 interaction experiments in He plasma, 1383, 3351
 ionospheric, absorption variations measured at different stations, 1051
 analysis for, 3510
 arrival-angle measurements for, 1200
 in Japan, 549
 aspect-sensitive back-scatter at middle latitudes, 1527
 by back-scatter, D.S.I.R. sounder for study of, 3197
 from ground, 1854
 observations with telegraphy signals, 896
 from sea surface, 1199
 bibliography on, 1195
 with critical or near-critical coupling, analysis for, 1192
 direction of arrival in, automatic recording of, 543
 directional fluctuations in, 2515
 divergence factor due to curvature of ionosphere surface, 1849
 effect of ionospheric storms on, North-Atlantic-circuit study of, 1193
 effect of solar eclipse on, 3858
 effect of solar eruption on, 2717
- Wave propagation, e.m., ionospheric, E-layer, influence of Q.L.-Q.T. separation level on reflections from, 893, 3188
 estimate of antipodal area in, 3859
 fading in, of coupling echo, 2520
 experiments on, 2519
 height of production of, 1522
 due to irregularities, 1415
 in relation to ionosphere surface curvature, 900
 spaced-receiver measurements on, 3200
 field-strength forecasts and D-E layer model, 2194
 focusing effects and image zones in, 3512
 focusing effect of ripples on, 2872
 forecasts for, using control-line method, 235
 of m.u.f.s, 3196
 significance of sunspots for, 2202
 sources of error in, 3854
 in India, analysis of field-strength measurements, 1852
 interaction in, 1521, 2197, 2198
 of ordinary and extraordinary waves, 2196
 self-demodulation and other nonlinear effects in, 3856
 long-range, accuracy of m.u.f. determination for, 1523, 1524
 fluctuations of direction of arrival of, 1201
 lower limiting frequency for, 3514
 magneto-ionic triple splitting over Delhi, 895
 measurements of propagation time between Italy and U.S.A., 1190
 via meteoric E layer, 2871
 observations, at Banaras during solar eclipse 20th June 1955, 2514
 of lateral deviation in Japan, 3508
 of multiple F₂-layer reflections, 894
 reciprocity tests, 1856, 1857
 by scatter, 234
 in lower ionosphere, at low v.h.f. and high h.f., 245
 selective fading due to travelling ionospheric ripples, 3863
 technique of investigation, based on form of time-signal pulses, 1853
 by ground back-scatter, 1855
 u.s.w., review of, 3519
 vertical-incidence, effect of polarization orientation on, 3511
 vertical polarization variations in, 1526
 Z propagation 'hole' for, 2195
- by ionospheric or meteor-trail scattering, influence of aerial pattern in, 1198
 by ionospheric or tropospheric scattering, statistical theory of, 3853
 l.f., deviation at coast-line in, 3195
 over land/water paths, field-strength measurements for, 542
 long-range, path followed by, 3193
 phase changes with distance in, equipment for measurement of, 3857
 phase variations in crossing coast-line, 3194
 long-wave, in guide formed by earth and ionosphere, 22
 ionospheric analysis for oblique geomagnetic field, 546
 long-range, ionospheric, 1529
 Maxwell's equations for, method of integrating, 2697
 m.f., fading in, 249
 via meteor ionization trails, 3509
 microwave, absorbing materials for, 1470
 amplification in He negative glow, 715
 through artificial dielectrics, 1385
 fading in, due to atmospheric fronts, 2207
 due to ducts, statistical treatment of, 2206
 through inhomogeneous media, 1035
 in oceanic duct, prediction from meteorological data for, 2876
 on overwater paths, effect of water-level fluctuations on, 1530
 over sea, duct-type, Japanese observations of, 3861
 transmission by pairs of gratings, 1376
 mm- λ , atmospheric absorption in, 3862
 perturbation of field by irregularities of boundary, 87
 over radio links, review of, 2199
 reflection, from electron-ion clouds, 1191
 from stratified ionized gas, analysis for, 1189
 by scatter, from ionosphere and troposphere, 233
 ratio of steady signal to noise in, 2513
 scattering, by ionized gas column, 2693
 by irregular medium, 2192
 in turbulent ionized media, 1373
 shielding effect of conductive coatings in, 1520
 signal strength variations in, automatic apparatus for statistical study of, 2166
 over spherical earth, calculations taking account of diffraction in, 3186
 statistical effect of random variables in, 197
 over stratified earth, analysis for, 3190
 tensor scattering matrix for field in, 1690
 of transients over curved earth, 1959
 tropospheric, beyond-horizon, analysis based on absence of turbulence for, 240
 use of 'angular distance' in investigation of, 242
 influence of refractive-index gradient on, 241
 investigations of fading in, 250
 investigation of field strength beyond horizon, 1858
 night-time, effect of inversions on, 3198
 reflection at inhomogeneities in, 3518
 by scatter, 234
 effect of anisotropy of turbulence on, 239
 experimental investigation of, 237
 scatter mechanism and transmission loss in, 2870

Wave propagation, e.m., tropospheric, superrefraction effects on radio link, **2200**
 u.h.f., diversity tests of signal-strength for, **2210**
 $dm-\lambda$, over distances up to 250 km, tests of, **1197**
 effect of mountainous path in, **898**
 influence of atmospheric turbulence on, **2203**
 practical requirements for beyond-horizon ranges, **248**
 tests made in Italy, **3522**
 u.h.f. and microwave, by tropospheric scattering, experimental investigation of, **238**
 u.s.w., beyond-horizon, simple diffraction theory for, **2875**
 extended-range, Marconi's experiments on, **3517**
 survey of, **3860**
 validity of scattering calculations assuming perfect conductivity, **90**
 very-long-wave, influence of earth's magnetic field on, **232, 3060**
 v.h.f., abnormal, and refractive index in troposphere, **2517**
 abnormal reception due to abnormally dry air, **247**
 by aurora and E_s layer, **1533**
 auroral effects on, **429**
 auroral reflection in, **428, 2739**
 correlation between field strength and structure of atmosphere, **897**
 correlation with meteorological conditions, **3199**
 coverage of TV and f.m. stations, Danish investigations of, **1532**
 diffraction by mountains in, **1859, 3520**
 extended-range, as cause of interference, **550**
 observations and mechanism of, **2516**
 role of meteors in, **236**
 fading in, equipment for autocorrelation analysis of, **854**
 by ionospheric scatter, height of scattering layer in, **3521**
 investigations in Europe of, **1860**
 in lower ionosphere, **243, 244**
 long-range reception in U.S.S.R., **3523**
 trans-horizon reliability for communication systems, **2532**
 variation of transmission loss with distance and aerial height, **1531**
 v.l.f., ground-wave, curves for, **3516**
 long-distance, detailed investigation of, **3192**
 round earth, **231**

Waveguides, (See also Transmission lines)
 anisotropic, analysis for propagation in, **2287**
 asymmetrical junctions in, equivalent circuits of, **2290**
 circular, angular momentum of field in, **18**
 with coaxial-line input and output, analysis for, **2292**
 ferrite-loaded, energy-concentration effects in, **1615**
 with finite wall conductivity, propagation near cut-off in, **2619**
 with radial-line cavities, as microwave filter, **1330**
 with complex helical structure, modes obtainable with, **3279**
 couplings from rectangular to circular types, **2957**
 curved, analysis based on straight-section approximation for, **3633**
 with spaced longitudinal diaphragms, analysis for, **3280**
 dielectric-disk-loaded, as anisotropic media, **979**
 dielectric matching sections for, **666**
 dielectric-tube, theory of, **21**
 effect of deformations on propagation in, **665**
 with electron beams, nonlinear phenomena in interaction between beam and field in, **2914**
 containing ferrites, mathematical theory of propagation in, **1956**
 properties and applications of, **3666**
 temperature dependence of properties of, **2291**
 theory of, **20**

Waveguides, containing ferrites, for 0.87 and 1.9 cm λ , **1957**
 ferromagnetic, attenuation and permeability of, **2288**
 containing gyromagnetic medium, Faraday effect in, **2618**
 propagation of circularly polarized waves in, **2289**
 with imperfectly conducting walls, analysis for, **3634**
 iris-loaded, terminated, circularly symmetric TM waves in, **19**
 resonance frequencies and field configurations in, **1302**
 junctions for, admittance of, **2286**
 annular rotary type, **1954**
 with coaxial lines, design for wide frequency band, **661**
 $\lambda/4$ matching sections for, **2293**
 with longitudinal diaphragms at regular spacings, analysis for propagation in, **978**
 containing magnetized ferrites, theory of, and devices based on, **2958**
 microwave filters using, design of, **1645**
 containing periodic structures, analysis involving paired systems of algebraic equations for, **1955**
 lossy, analysis for, **2285**
 radial, theory of, **22**
 rectangular, with asymmetrical diaphragms, analysis for, **1301**
 with ferrite plate, calculations for propagation in, **323**
 containing ferrite slabs, modes of propagation in, **325**
 as nonreciprocal attenuators, **3675**
 nonreciprocal phase shifts in, **2959**
 theory of propagation in, **324**
 spurious modes in, transmission loss due to, **3635**
 step-by-step method for design of, **17**
 testing of, with μs pulses, **1808**
 transients in, analysis for, **1300**
 transmission of pulses in, analysis for, **344**

Wavemeters, (See also Frequency, meters)
 microwave, based on interference between reflected waves, **3495**
 sliding-rod type developed at Physikalisches-Technische Bundesanstalt, for 180 Mc/s-80 kMc/s, **2494**

Waves, (See also Diffraction; Sound; Transmission lines, surface-wave; Ultrasonics)
 cm- λ , e.m. and acoustic, survey of absorption devices for, **3037**
 in electron beams, conditions for propagation of, **1906**
 e.m., elliptically polarized, errors in measurements of, **2836**
 total reflection of, **1375**
 interaction with 'Cerenkov electron gas' of, **3035**
 in ionized medium with magnetic field, analysis of possible modes in, **2030**
 surface, over dielectric-coated conducting plane, excitation of, **(D)320**
 launched from vertical dipole over reactive-surface disk, **2282**
 hydromagnetic, in ionized gas, **91**
 magnetohydrodynamic, shock, in plasma, structure of, **2701**
 space-charge, mechanism of growth of, **2258, 2702**
 statistical properties of, **3326**

Work function. See Electron emission.

X-ray camera, for crystal examination, **840**
X-ray tubes, electron optics of, **3847**
X rays, effect on operation of junction transistors of, **1245**
 image intensifiers for, **2510, 3174**
 photoconductive pickup tubes as, **2864**
 television camera tube producing images by, **1901**

ERRATA

IN 'ABSTRACTS AND REFERENCES', 1956

Abstract No. 440	Add B. Včšicki as co-author
Abstract No. 1805	Change U.D.C. number 621.3 to 621.317.3
Abstract No. 2472	Change U.D.C. number 621.3.001.3 to 621.3.011.3

IN PAPERS ABSTRACTED

During 1956 the practice of allocating individual abstract numbers to corrections was largely discontinued; a list of published corrections noted during the year is given below. The journal in which the correction appeared was in each case the same as that in which the original paper was published.

Abstract No.	Correction publication reference
2941 of 1953	Oct. 1956, Vol. 44, No. 10, p. 1468
1336 of 1954	Sept. 1955, Vol. 32, No. 3, p. 178
728 of 1955	Nov. 1955, Vol. 10, No. 11, p. 1027
2283 of 1955	Jan. 1955, Vol. 2, No. 7, p. 3 of cover
3119 of 1955	Dec. 1955, Vol. 26, No. 12, p. 1523

3208 of 1955
3235 of 1955
3658 of 1955
303 of 1956
306 of 1956
425 of 1956
490 of 1956
491 of 1956
1007 of 1956
1014 of 1956
1038 of 1956
1929 of 1956
1953 of 1956
2086 of 1956
2123 of 1956
2296 of 1956
2475 of 1956
2759 of 1956
2946 of 1956
2967 of 1956
3030 of 1956
3843 of 1956

Nov. 1955, Vol. 43, No. 11, p. 1579
July 1956, Vol. 11, No. 7, p. 806
Nov. 1955, Vol. 26, No. 11, p. 1389
Dec. 1955, Vol. 26, No. 12, p. 1522-1523
April-June 1956, Vol. 2, No. 2, p. 231
March 1956, Vol. 10, No. 1, p. 17
Nov. 1955, Vol. 9, No. 11, p. 395
Dec. 1955, Vol. 26, No. 12, p. 1523
Aug. 1956, Vol. 28, No. 342, p. 359
Aug. 1956, Vol. 44, No. 8, p. 1047
Feb. 1956, Vol. 27, No. 2, p. 196
April-June 1956, Vol. 2, No. 2, p. 231
Dec. 1956, Vol. 44, No. 12, p. 1753
April-June 1956, Vol. 2, No. 2, p. 231
Nov. 1956, Vol. 44, No. 11, p. 1541
July 1956, Vol. 44, No. 7, p. 926
Dec. 1956, Vol. 44, No. 12, p. 1765
Dec. 1955, Vol. 10a, No. 12, p. 1038
1956, Vol. 6, No. 3, p. 324
Sept. 1956, Vol. 28, No. 343, p. 407
Aug. 1956, Vol. 27, No. 8, p. 652
Oct. 1956, Vol. 16, No. 10, p. 532

LIST OF JOURNALS

A selection of the journals which are regularly scanned is given below, together with the addresses of their publishers or editorial offices and the abbreviations of their titles as used in the Abstracts and References. Applications for copies of any journal should be made to the addresses given.

The full title of each journal is given in bold type and is followed by the address, the abbreviated title being shown within brackets. In a few cases the nature of a journal is indicated, where neither the title nor the address shows it clearly.

- Acta physica austriaca**, Springer Verlag, Wien I, MÖlkerbastei 5, Austria. (*Acta phys. austriaca*)
- Acta Polytechnica**, Royal Swedish Academy of Engineering Sciences, Stockholm, Sweden. (*Acta polyt., Stockholm*)
- Acustica**, S. Hirzel Verlag, Stauffacherquai 40, Zürich 1, Switzerland. (*Acustica*)
- Advances in Physics**, Taylor & Francis Ltd, Red Lion Court, Fleet Street, London, E.C.4, England. (*Advances Phys.*)
- Akusticheski Zhurnal**, Moscow B-64, Podsovenski per., 21, U.S.S.R. (*Akust. Zh.*)
- Akustische Beihfte**, S. Hirzel Verlag, Stauffacherquai 40, Zürich 1, Switzerland. (*Akust. Beihfte*)
- Alta Frequenza**, Associazione Elettrotecnica Italiana, Milano (202), Via S. Paolo 10, Italy. (*Alta Frequenza*)
- Annalen der Physik**, J. A. Barth, Leipzig C 1, Salomonstrasse 18B, Germany. (*Ann. Phys., Lpz.*)
- Annales de Géophysique**, Service des Publications du C.N.R.S., 13 quai Anatole France, Paris 7^e, France. (*Ann. Géophys.*)
- Annales de Physique**, Masson & Cie, 120 Boulevard Saint-Germain, Paris 6^e, France. (*Ann. Phys., Paris*)
- Annales de Radioélectricité**, 10 rue Carducci, Paris 19^e, France. (*Ann. Radioelect.*)
- Annales des Télécommunications**, 3 & 5 Boulevard Pasteur, Paris 15^e, France. (*Ann. Télécommun.*)
- Annali di Geofisica**, Istituto Nazionale di Geofisica, Città universitaria, Roma, Italy. (*Ann. Geofis.*)
- Applied Scientific Research**, Martinus Nijhoff, Lange Voorhout 9, The Hague, Netherlands. (*Appl. sci. Res.*)
- Archiv der elektrischen Übertragung**, S. Hirzel Verlag, Stuttgart, Germany. (*Arch. elekt. Übertragung*)
- Archiv für Elektrotechnik**, Springer Verlag, Berlin W35, Reichpietschufer 20, Germany. (*Arch. Elektrotech.*)
- Archiv für Meteorologie Geophysik und Bioklimatologie**, Series A, Springer Verlag, Wien I, MÖlkerbastei 5, Austria. (*Arch. Met., Wien*)
- Archiv für technisches Messen**, R. Oldenbourg KG, München 8, Rosenheimer Str. 145, Germany. (*Arch. tech. Messen*)
- Archiwum Elektrotechniki**, Warszawa, ul. Koszykowa 75, Polytchnika, Zakład Elektryki PAN, Poland. (*Archiwum Elektrotech.*)
- Arkiv för Fysik**, published for Royal Swedish Academy of Sciences by Almqvist & Wiksells Boktryckeri A. B., Stockholm, Sweden. (*Ark. Fys.*)
- A.T.E. Journal**, Automatic Telephone & Electric Co., Strower Works, Liverpool 7, England. (*A.T.E. J.*)
- Audio**, 204 Front Street, Mineola, N.Y., U.S.A. (*Audio*)
- Australian Journal of Applied Science**, Commonwealth Scientific and Industrial Research Organization, 314 Albert Street, East Melbourne C.2, Victoria, Australia. (*Aust. J. appl. Sci.*)
- Australian Journal of Physics**, as for Australian Journal of Applied Science. (*Aust. J. Phys.*)
- Автоматика і Телемеханіка**, Moscow, Leningradskoe shosse, 9, U.S.S.R. (*Автоматика і Телемеханіка*)
- A.W.A. Technical Review**, Amalgamated Wireless (Australasia) Ltd, Sydney, Australia. (*A.W.A. tech. Rev.*)
- B.B.C. Engineering Division Monographs**, British Broadcasting Corporation, 35 Marylebone High Street, London, W.1, England. (*B.B.C. Engng Div. Monographs*)
- Beama Journal**, British Electrical and Allied Manufacturers' Association, 36 Kingsway, London, W.C.2, England. (*Beama J.*)
- Bell Laboratories Record**, 463 West Street, New York 14, N.Y., U.S.A. (*Bell Lab. Rec.*)
- Bell System Technical Journal**, American Telephone and Telegraph Company, 195 Broadway, New York 7, N.Y., U.S.A. (*Bell Syst. tech. J.*)
- British Communications & Electronics**, Heywood & Co. Ltd, Drury House, Russell Street, Drury Lane, London, W.C.2, England. (*Brit. Commun. Electronics*)
- British Journal of Applied Physics**, 47 Belgrave Square, London, S.W.1, England. (*Brit. J. appl. Phys.*)
- Brown Boveri Review**, Baden, Switzerland. (*Brown Boveri Rev.*)
- Bulletin de l'Académie des Sciences de l'U.R.S.S., (a) série physique, (b) série géophysique, (c) classe sciences techniques** (in Russian), Academy of Sciences, Moscow, M. Kharitonovskii per., 4, U.S.S.R. (*Bull. Acad. Sci. U.R.S.S., (a) sér. phys., (b) sér. géophys., (c) tech. Sci.*)
- Bulletin de l'Association suisse des Électriciens**, Seefeldstrasse 301, Zürich 8, Switzerland. (*Bull. schweiz. elektrotech. Ver.*)
- Bulletin de la Société française des Électriciens**, 8-14 Avenue Pierre-Larousse, Malakoff (Seine), France. (*Bull. Soc. franç. Élect.*)
- Bulletin of the Technical University Istanbul**, Istanbul Teknik Üniversitesi, Gülmüşsuyu, Istanbul, Turkey. (*Bull. tech. Univ. Istanbul*)
- Câbles & Transmission**, Sotelec, 16 rue de la Baume, Paris 8^e, France. (*Câbles & Transm.*)
- Cahiers de Physique**, 165 Rue de Sèvres, Paris 15^e, France. (*Cah. Phys.*)
- Canadian Journal of Physics**, National Research Council, Ottawa 2, Canada. (*Canad. J. Phys.*)
- Canadian Journal of Technology**, as for Canadian Journal of Physics. (*Canad. J. Technol.*)
- Chalmers tekniska Högskolas Handlingar**, N. J. Gumperts Förlag, Göteborg, Sweden. (*Chalmers tek. Högsk. Handl.*)
- Communication News**, Philips Telecommunications Industries, Hilversum, Netherlands. (*Commun. News*)
- Communications on Pure and Applied Mathematics**, Interscience Publishers Inc., 250 Fifth Avenue, New York 1, N.Y., U.S.A. (*Commun. pure appl. Math.*)
- Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences**, Gauthier-Villars, 55 Quai des Grands-Augustins, Paris 6^e, France. (*C. R. Acad. Sci., Paris*)
- Comptes Rendus (Doklady) de l'Académie des Sciences de l'U.R.S.S.** (in Russian), Moscow B-64, Podsovenski per., 21, U.S.S.R. (*C. R. Acad. Sci. U.R.S.S.*)
- Electrical Communication**, International Telephone and Telegraph Corporation, 67 Broad Street, New York 4, N.Y., U.S.A. (*Elect. Commun.*)
- Electrical Engineering**, Journal of the American Institute of Electrical Engineers, 500 Fifth Avenue, New York 36, N.Y., U.S.A. (*Elect. Engng, N.Y.*)
- Electrical Journal**, Bouverie House, 154 Fleet Street, London, E.C.4, England. (*Elect. J.*)
- Electrical Manufacturing**, 1250 Sixth Avenue, New York 20, N.Y., U.S.A. (*Elect. Mfg.*)
- Electrical Review**, Dorset House, Stamford Street, London, S.E.1, England. (*Elect. Rev., Lond.*)
- Electrical Times**, Sardinia House, Sardinia Street, London, W.C.2, England. (*Elect. Times*)
- Electronic Engineering**, 28 Essex Street, London, W.C.2, England. (*Electronic Engng*)
- Electronic Industries & Tele-Tech**, formerly Tele-Tech & Electronic Industries, Chestnut & 56th Sts, Philadelphia 39, Pa, U.S.A. (*Electronic Ind. Tele-Tech*)
- Electronics**, 330 West 42nd St., New York 36, N.Y., U.S.A. (*Electronics*)
- Elektronische Rundschau**, Verlag für Radio-Foto-Kinotechnik G.m.b.H., Berlin-Borsigwalde, Eichborndamm 141-167, Germany. (*Elektronische Rundschau*)
- Elektrotechnik und Maschinenbau**, Journal of the Elektrotechnischer Verein Österreichs, Springer Verlag, Wien I, MÖlkerbastei 5, Austria. (*Elektrotech. u. Maschinenb.*)
- Elektrotechnische Zeitschrift**, Edition A & B, VDE-Verlag, Wuppertal-Elberfeld, Brillerstrasse 99, Germany. (*Elektrotech. Z.*)
- Endeavour**, Imperial Chemical Industries, North Block, Thames House, Millbank, London, S.W.1, England. (*Endeavour*)
- Engineer**, 28 Essex Street, London, W.C.2, England. (*Engineer, Lond.*)
- Engineering**, 35 & 36 Bedford Street, London, W.C.2, England. (*Engineering, Lond.*)
- Ericsson Review**, Telefonaktiebolaget L. M. Ericsson, Stockholm 32, Sweden. (*Ericsson Rev.*)
- Ericsson Technics**, as for Ericsson Review. (*Ericsson Tech.*)
- Fernmeldetechnische Zeitschrift**, Vieweg & Sohn, Braunschweig, Burgplatz 1, Germany. (*Fernmeldetech. Z.*)
- Frequenz**, Verlag Schiele & Schön, Berlin S.W.29, Boppstrasse 10, Germany. (*Frequenz*)
- Funk-Technik**, Verlag für Radio-Foto-Kinotechnik G.m.b.H., Berlin-Borsigwalde, Eichborndamm 141-167, Germany. (*Funk-Technik, Berlin*)
- G.E.C. Journal**, General Electric Company Ltd, Magnet House, Kingsway, London, W.C.2, England. (*G.E.C. J.*)
- G.E.C. Telecommunications**, General Electric Company Ltd, Coventry, England. (*G.E.C. Telecommun.*)
- General Electric Review**, General Electric Company, 1 River Road, Schenectady 5, N.Y., U.S.A. (*Gen. Elect. Rev.*)
- General Radio Experimenter**, General Radio Company, 275 Massachusetts Avenue, Cambridge 39, Mass., U.S.A. (*Gen. Radio Exp.*)
- Geofisica Pura e Applicata**, Milano, Istituto Geofisico Italiano, Piazza Leonardo da Vinci 12, Italy. (*Geofis. pura appl.*)

Helvetica Physica Acta, Journal of the Société suisse de Physique, Editions Birkhäuser, Bâle 10, Switzerland. (*Helv. phys. Acta*)
Hochfrequenztechnik und Elektroakustik, Akademische Verlagsgesellschaft Geest & Portig K.-G., Leipzig C1 Sternwartenstr. 8, Germany. (*Hochfrequenztech. u. Elektroakust.*)

Indian Journal of Physics (and Proceedings of the Indian Association for the Cultivation of Science), 210 Bowbazer Street, Calcutta, India. (*Indian J. Phys.*)

Journal of the Acoustical Society of America, American Institute of Physics, 57 East 55th Street, New York 22, N.Y., U.S.A. (*J. acoust. Soc. Amer.*)

Journal of Applied Physics, American Institute of Physics, 57 East 55th Street, New York 22, N.Y., U.S.A. (*J. appl. Phys.*)

Journal of Atmospheric and Terrestrial Physics, Pergamon Press Ltd, 4 & 5 Fitzroy Square, London, W.1. (*J. atmos. terr. Phys.*)

Journal of the Audio Engineering Society, P.O. Box 12, Old Chelsea Station, New York 11, N.Y., U.S.A. (*J. audio Engng. Soc.*)

Journal of the British Institution of Radio Engineers, 9 Bedford Square, London, W.C.1, England. (*J. Brit. Instn Radio Engrs*)

Journal of the Electrochemical Society, Mount Royal and Guilford Aves, Baltimore 2, Md, U.S.A. (*J. electrochem. Soc.*)

Journal of Electronics, Taylor and Francis Ltd, Red Lion Court, Fleet Street, London, E.C.4, England. (*J. Electronics*)

Journal of the Franklin Institute, Benjamin Franklin Parkway at Twentieth Street, Philadelphia 3, Pa, U.S.A. (*J. Franklin Inst.*)

Journal of Geomagnetism and Geoelectricity, Society of Terrestrial Magnetism and Electricity of Japan, Geophysical Institute, Kyoto University, Kyoto, Japan. (*J. Geomag. Geoelect.*)

Journal of Geophysical Research, 5241 Broad Branch Road, N.W., Washington 15, D.C., U.S.A. (*J. geophys. Res.*)

Journal of the Indian Institute of Science, Indian Institute of Science, Bangalore 3, India. (*J. Indian Inst. Sci.*)

Journal of the Institute of Navigation, John Murray Ltd, 50 Albemarle Street, London, W.1, England. (*J. Inst. Nav.*)

Journal of the Institution of Telecommunication Engineers, Post Box 481, New Delhi, India. (*J. Instn Telecommun. Engrs, India*)

Journal of Mathematics and Physics, Massachusetts Institute of Technology, Cambridge 39, Mass., U.S.A. (*J. Math. Phys.*)

Journal of the Optical Society of America, American Institute of Physics, 57 East 55th Street, New York 22, N.Y., U.S.A. (*J. opt. Soc. Amer.*)

Journal of the Physical Society of Japan, Maruzen Publishing Co., P.O. Box 605 Central, Tokyo, Japan. (*J. phys. Soc. Japan*)

Journal de Physique et le Radium, 12 place Henri-Bergson, Paris 8^e, France. (*J. Phys. Radium*)

Journal of the Radio Research Laboratories, Ministry of Postal Services, Tokyo, Japan. (*J. Radio Res. Labs, Japan*)

Journal of Research of the National Bureau of Standards, U.S. Government Printing Office, Washington 25, D.C., U.S.A. (*J. Res. nat. Bur. Stand.*)

Journal of Scientific Instruments, 47 Belgrave Square, London, S.W.1, England. (*J. sci. Instrum.*)

Journal of the Society of Motion Picture and Television Engineers, 40 West 40th Street, New York 18, N.Y., U.S.A. (*J. Soc. Mot. Pict. Telev. Engrs*)

Journal of the Television Society, 164 Shaftesbury Avenue, London, W.C.2, England. (*J. Telev. Soc.*)

Marconi Review, Marconi House, Chelmsford, England. (*Marconi Rev.*)

Materials and Methods, Reinhold Publishing Corporation, 430 Park Avenue, New York 22, N.Y., U.S.A. (*Mater. & Meth.*)

Metal Industry, Louis Cassier Company Ltd, Dorset House, Stamford Street, London, S.E.1, England. (*Metal Ind., Lond.*)

Metallurgia, 31 King Street West, Manchester 3, England. (*Metallurgia, Manchr*)

Meteorological Magazine, Her Majesty's Stationery Office, York House, Kingsway, London, W.C.2, England. (*Met. Mag., Lond.*)

Microtecnic, 23 Avenue de la Gare, Lausanne, Switzerland. (*Microtecnic*)

Modern Plastics, 575 Madison Avenue, New York 22, N.Y., U.S.A. (*Mod. Plast.*)

Monthly Notices of the Royal Astronomical Society, Burlington House, London, W.1, England. (*Mon. Not. R. astr. Soc.*)

Nachrichten Technik, V.E.B. Verlag Technik, Berlin N.W.7, Unter den Linden 12, Germany. (*NachrTech.*)

Nachrichtentechnische Zeitschrift, formerly Fernmeldetechnische Zeitschrift, Vieweg & Sohn, Braunschweig, Burgplatz 1, Germany. (*Nachrichtentech. Z.*)

Nature, Macmillan & Co. Ltd, St. Martin's Street, London, W.C.2, England. (*Nature, Lond.*)

Naturwissenschaften, Springer Verlag, Heidelberg, Neuenheimer Landstrasse 24, Germany. (*Naturwissenschaften*)

Nucleonics, 330 West 42nd Street, New York 36, N.Y., U.S.A. (*Nucleonics*)

Nuovo Cimento, Editore Nicola Zanichelli, Bologna, Via Irnerio 34, Italy. (*Nuovo Cim.*)

Observatory, Royal Observatory, Herstmonceux Castle, Hailsham, Sussex, England. (*Observatory*)

Onde électrique, 40 rue de Seine, Paris 6^e, France. (*Onde élect.*)
Optik, Wissenschaftliche Verlagsgesellschaft m.b.H., Stuttgart 1, Postfach 40, Germany. (*Optik, Stuttgart*)

Philips Research Reports, N.V. Philips Gloeilampenfabrieken, Eindhoven, Netherlands. (*Philips Res. Rep.*)

Philips Technical Review, as for Philips Research Reports. (*Philips tech. Rev.*)

Philips Telecommunication Review, formerly Communication News, Philips Telecommunications Industries, Hilversum, Netherlands. (*Philips Telecommun. Rev.*)

Philosophical Magazine, Taylor and Francis Ltd, Red Lion Court, Fleet Street, London, E.C.4, England. (*Phil. Mag.*)

Philosophical Transactions of the Royal Society, Burlington House, Piccadilly, London, W.1, England. (*Phil. Trans.*)

Physica, Journal of the Dutch Physical Society, Lucas Bolwerk 4, Utrecht, Netherlands. (*Physica*)

Physical Review, American Institute of Physics, 57 East 55th Street, New York 22, N.Y., U.S.A. (*Phys. Rev.*)

Piccole Note—Recensioni e Notizie, Istituto Superiore delle Poste e delle Telecomunicazioni, Roma, Viale di Trastevere 189, Italy. (*Piccole Note Ist. super. Poste e Telecomunicazioni*)

Post Office Electrical Engineers' Journal, Engineer-in-Chief's Office, Alder House, Aldersgate Street, London, E.C.1, England. (*P.O. elect. Engrs' J.*)

Poste e Telecomunicazioni, Roma, Via della Vite 107, Italy. (*Poste e Telecomunicazioni*)

Priroda, Moscow, M. Kharitonévskii per., 4, U.S.S.R. (*Priroda, Moscow*)

Proceedings of the Cambridge Philosophical Society, Cambridge University Press, Bentley House, London, N.W.1, England. (*Proc. Camb. phil. Soc.*)

Proceedings of the Institute of Radio Engineers, 1 East 79th Street, New York 21, N.Y., U.S.A. (*Proc. Inst. Radio Engrs*)

Proceedings of the Institution of Electrical Engineers, Parts A, B and C, Savoy Place, London, W.C.2, England. (*Proc. Instn elect. Engrs*)

Proceedings of the Institution of Radio Engineers, Australia, Science House, Gloucester Street, Sydney, N.S.W., Australia. (*Proc. Instn Radio Engrs Aust.*)

Proceedings of the National Electronics Conference, 84 East Randolph Street, Chicago, Illinois, U.S.A. (*Proc. nat. Electronics Conf., Chicago*)

Proceedings of the Physical Society, 1 Lowther Gardens, Prince Consort Road, London, S.W.7, England. (*Proc. phys. Soc.*)

Proceedings of the Radio Club of America, 11 West 42nd Street, New York, N.Y., U.S.A. (*Proc. Radio Cl. Amer.*)

Proceedings of the Royal Society, Burlington House, Piccadilly, London, W.1, England. (*Proc. roy. Soc.*)

Het PTT-Bedrijf, Centrale Directie PTT, Kortenaerkade 12, 's-Gravenhage, Netherlands. (*PTT-Bedrijf*)

QST, American Radio Relay League Inc., 3 La Salle Road, West Hartford 7, Conn., U.S.A. (*QST*)

Quarterly of Applied Mathematics, Brown University, Providence 12, R.I., U.S.A. (*Quart. appl. Math.*)

Quarterly Journal of Mathematics, Oxford University Press, Amen House, London, E.C.4, England. (*Quart. J. Math.*)

Quarterly Journal of Mechanics and Applied Mathematics, Oxford University Press, Amen House, London, E.C.4, England. (*Quart. J. Mech. appl. Math.*)

Quarterly Journal of the Royal Meteorological Society, 49 Cromwell Road, London, S.W.7. (*Quart. J. R. met. Soc.*)

Radio, Izdatel'stvo DOSAAF, Moscow, B-66, Novo-Ryazanskaya ul., 26, U.S.S.R. (*Radio, Moscow*)

Radio-Electronic Engineering, Ziff-Davis Publishing Company, 386 Madison Avenue, New York 17, N.Y., U.S.A. (*Radio-Electronic Engng*)

Radioschau, formerly Radio Technik, Wien VI, Mariahilferstrasse 71, Austria. (*Radioschau*)

Radio Technik. See Radioschau.

Radio & Television News, Ziff-Davis Publishing Company, 386 Madison Avenue, New York 17, N.Y., U.S.A. (*Radio & Telev. News*)

Radiotekhnika, Moscow, Chistoprudnyi Bulvar, 2, U.S.S.R. (*Radiotekhnika, Moscow*)

Radiotekhnika i Elektronika, Moscow K-9, Mokhovaya, 11, U.S.S.R. (*Radiotekhnika i Elektronika*)

RCA Review, RCA Laboratories Division, Princeton, N.J., U.S.A. (*RCA Rev.*)

Referativnyi Zhurnal, Fizika, Moscow, D-119, Baltiiskil pos., 42 B, U.S.S.R. (*Referativnyi Zh., Fiz.*)

Rendiconti della Accademia Nazionale dei Lincei, Roma, Via della Lungara 10, Italy. (*R.C. Accad. naz. Lincei*)

Report of Ionosphere Research in Japan, Kokusaiunken Printing Co. Ltd, No. 10, 1-chome, Fujimi-Cho Chiyoda-Ku, Tokyo, Japan. (*Rep. Ionosphere Res. Japan*)

Reports of the Electrical Communication Laboratory, Nippon Telegraph and Telephone Public Corporation, 1551 Kichijoji, Musashino-shi, Tokyo, Japan. (*Rep. elect. Commun. Lab., Japan*)

Reports on Progress in Physics, The Physical Society, 1 Lowther Gardens, Prince Consort Road, London, S.W.7, England. (*Rep. Progr. Phys.*)

Research, Butterworth's Scientific Publications Ltd, 88 Kingsway, London, W.C.2, England. (*Research, Lond.*)

- Review of Scientific Instruments**, American Institute of Physics, 57 East 55th Street, New York 22, N.Y., U.S.A. (*Rev. sci. Instrum.*)
- Reviews of Modern Physics**, American Institute of Physics, 57 East 55th Street, New York 22, N.Y., U.S.A. (*Rev. mod. Phys.*)
- Revista Española de Electrónica**, Apartado 5252, Barcelona, Spain. (*Rev. española Electrónica*)
- Revista de Geofísica**, La Secretaría, Ríos Rosas 9, Madrid, Spain. (*Rev. Geofis., Madrid*)
- Revista de Telecomunicación**, Palacio de Comunicaciones, Madrid, Spain. (*Rev. Telecomunicación, Madrid*)
- Revista Telegráfica Electrónica**, Arbo Editores, Buenos Aires, Argentina. (*Rev. teleg. Electronica, Buenos Aires*)
- Revue générale de l'Électricité**, 12 place Henri Bergson, Paris 8^e, France. (*Rev. gén. Élect.*)
- Revue HF**, 55 rue Dufayez, Brussels, Belgium. (*Rev. HF, Brussels*)
- Revue d'Optique**, 3 & 5 Boulevard Pasteur, Paris 15^e, France. (*Rev. d'Optique*)
- Revue scientifique**, 4 rue Pomereu, Paris 16^e, France. (*Rev. sci., Paris*)
- Ricerca scientifica**, Roma, Piazza della Libertà 10, Italy. (*Ricerca sci.*)
- R.S.G.B. Bulletin**, New Ruskin House, Little Russell Street, London, W.C.1, England. (*R.S.G.B. Bull.*)
- Schweizer Archiv für angewandte Wissenschaft und Technik**, Buchdruckerei Vogt-Schild AG, Solothurn, Switzerland. (*Schweiz. Arch. angew. Wiss. Tech.*)
- Science Reports of the Research Institutes Tohoku University**, Tohoku University, Sendai, Japan. (*Sci. Rep. Res. Inst. Tohoku Univ.*)
- Scientific Monthly**, 10 McGovern Avenue, Lancaster, Pa, U.S.A. (*Sci. Mon.*)
- Slaboproudý Obzor**, Praha II, Krakovská 8, Czechoslovakia. (*Slab. Obz., Prague*)
- Sylvania Technologist**, Sylvania Electric Products Inc., Sylvania Center, Bayside, N.Y., U.S.A. (*Sylvania Technologist*)
- Technical News Bulletin of the National Bureau of Standards**, U.S. Government Printing Office, Washington 25, D.C., U.S.A. (*Tech. News Bull. nat. Bur. Stand.*)
- Technische Hausmittellungen des Nordwestdeutschen Rundfunks**, H. H. Nölke Verlag, Hamburg 20, Hegestrasse 40, Germany. (*Tech. Hausmitt. NordwDtsch. Rfufunks*)
- Technische Mittellungen**, Journal of the Swiss Post Office, Direction générale PTT, Berne, Speichergasse 6, Switzerland. (*Tech. Mitt. Schweiz. Telegr.-TelephVerw.*)
- Tele-Tech & Electronic Industries**, see Electronic Industries & Tele-Tech. (*Tele-Tech & Electronic Ind.*)
- Telefunken Zeitung**, Telefunken G.m.b.H., Berlin S.W.61, Mehringdamm 32-34, Germany. (*Telefunken Ztg*)
- Télévision**, 9 rue Jacob, Paris 6^e, France. (*Télévision*)
- Tellus**, Lindhagensgatan 124, Stockholm, Sweden. (*Tellus*)
- Tijdschrift van het Nederlands Radiogenootschap**, Jagtlustlaan 9, Santpoort-Station, Netherlands. (*Tijdschr. ned. Radiogenoot.*)
- TMC Technical Journal**, Hollingsworth Works, Dulwich, London, S.E.21, England. (*TMC tech. J.*)
- Toute la Radio**, 9 rue Jacob, Paris 6^e, France. (*Toute la Radio*)
- Transactions of the American Geophysical Union**, 1530 P Street, N.W., Washington 5, D.C., U.S.A. (*Trans. Amer. geophys. Union*)
- Transactions of the American Institute of Electrical Engineers**, 500 Fifth Avenue, New York 36, N.Y., U.S.A. (*Trans. Amer. Inst. elect. Engrs*)
- Transactions of the Institute of Radio Engineers**, 1 East 79th Street, New York 21, N.Y., U.S.A. (*Trans. Inst. Radio Engrs*)
- TSF et TV**, 40 rue de Seine, Paris 6^e, France. (*TSF et TV*)
- Uspekhi Fizicheskikh Nauk**, Moscow, B-71, B. Kaluzhskaya 15 (Gostekhizdat), U.S.S.R. (*Uspekhi fiz. Nauk*)
- Le Vide**, Journal of the Société française des Ingénieurs Techniciens du Vide, 44 rue de Rennes, Paris 6^e, France. (*Le Vide*)
- Weather**, 49 Cromwell Road, London, S.W.7, England. (*Weather*)
- Wireless Engineer**, Dorset House, Stamford Street, London, S.E.1 England. (*Wireless Engr*)
- Wireless World**, as for Wireless Engineer. (*Wireless World*)
- Zeitschrift für angewandte Mathematik und Physik**, Editions Birkhäuser, Bâle 10, Switzerland. (*Z. angew. Math. Phys.*)
- Zeitschrift für angewandte Physik**, Springer Verlag, Berlin W35, Reichpietschufer 20, Germany. (*Z. angew. Phys.*)
- Zeitschrift für Metallkunde**, Dr. Riederer-Verlag G.m.b.H., Stuttgart, Marienstrasse 50, Germany. (*Z. Metallkde*)
- Zeitschrift für Meteorologie**, Akademieverlag G.m.b.H., Berlin N.W.7, Schiffbauerdamm 19, Germany. (*Z. Met.*)
- Zeitschrift für Naturforschung**, Tübingen, Postfach 61, Germany. (*Z. Naturf.*)
- Zeitschrift für Physik**, Springer Verlag, Berlin W35, Reichpietschufer 20, Germany (*Z. Phys.*)
- Zhurnal eksperimentalnoi i teoreticheskoi Fiziki**, Moscow, B-64, Podosenski per., 21, U.S.S.R. (*Zh. eksp. teor. Fiz.*)
- Zhurnal tekhnicheskoi Fiziki**, Leningrad, 164, V.O., Mendeleevskaya lin., 1, U.S.S.R. (*Zh. tekhn. Fiz.*)

With this Index to Abstracts and References is included a title page for inclusion with the bound volume for 1956. When binding, it is suggested that the issues be broken down and assembled in the following order:- Title page; index to editorial (from December issue); all editorial pages together, in proper sequence; all abstracts pages together, in proper sequence; Index to Abstracts. This order has been found the most convenient.

