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Abbreviations used in the Index

Table of abbreviations and their meanings, such as a.c. = alternating current, d.c. = direct current, h.v. = high voltage, etc.

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- Kohane, T., with P. P. Debye, Hall mobility of electrons and holes in Si, 2703
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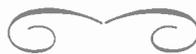
- Serrell, R., elements of Boolean algebra, 57, (C)1318
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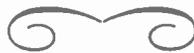
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LIST OF JOURNALS

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 first and is followed by the address, the abbreviated title being shown within parentheses. In a few cases the nature of a journal is indicated, where neither the title nor the address shows it clearly.

U.D.C. CHANGES

Cross-modulation 621.396.11:551.510.535

Changes in U.D.C. numbers resulting from the extensions proposed in PE Notes 518, 519 and 535 and now adopted (See January 1954 abstracts) are too numerous to list in full, but a few of the main numbers are appended below to indicate the extent of the changes.

Amplifiers 621.375
Demodulation 621.376
Generators of electric oscillations and pulses 621.373
Modulation 621.376
Networks 621.372.4/6
Pulse processes 621.374
Radar 621.396.96
Transmission-line theory 621.372.2
Waveguides 621.372.8

ERRATA

In "Abstracts and References" throughout the year Abstract No. 1257 in title for 'Zirconium' read 'Zirconia'.
Abstract No. 1289 For '631.395.625.3' read '621.395.-625.3'.
Abstract No. 1546 Change U.D.C. number to 621.-396.11:551.510.535.
Abstract No. 2132 for 'J. R. Johnson' read 'J. B. Johnson'.
Abstract No. 2423 For 'R. N. Decker' read 'R. N. Dexter'.
Abstract No. 2496 Change U.D.C. number to 621.-396.11:551.510.535.
Abstract No. 2749 Change U.D.C. number to 621.-396.11:551.510.535.
Abstract No. 2870 For 'L. Tourel' read 'L. Thourel'.
Abstract No. 2990 For 'R. H. Pohl' read 'R. G. Pohl'.

Acta physica austriaca, Springer Verlag, Wien 1. MÖlkerbastei 5, Austria. (*Acta phys. austriaca*)
Acta Polytechnica, Royal Swedish Academy of Engineering Sciences, Stockholm, Sweden. (*Acta polyt., Stockholm*)
Acustica, S. Hirzel Verlag, Gotthardstrasse 6, Zürich, Switzerland. (*Acustica*)
Advances in Physics, Taylor & Francis Ltd., Red Lion Court, Fleet Street, London, E.C.4, England. (*Advances Phys.*)
Akustische Beihefte, S. Hirzel Verlag, Gotthardstrasse 6, Zürich, Switzerland. (*Akust. Beihefte*)
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., 45 rue d'Ulm, Paris 5^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, Heidelberg, Neuenheimer Landstrasse 24, Germany. (*Arch. Elektrotech.*)
Archiv für Meteorologie Geophysik und Bioklimatologie, Series A, Springer Verlag, Wien 1. MÖlkerbastei 5, Austria. (*Arch. Met., Wien*)
Archiv für technisches Messen, R. Oldenbourg Verlag, München, Lotzbeckstrasse 2b, Germany. (*Arch. tech. Messen*)
Arkiv för Fysik, published for Royal Swedish Academy of Sciences by Almqvist & Wiksells Boktryckeri A. B., Stockholm, Sweden. (*Ark. Fys.*)
A.T.E. Journal (incorporating Strowger Journal), Automatic Telephone & Electric Co., Strowger Works, Liverpool 7, England. (*A.T.E.J.*)
Audio (formerly Audio Engineering), 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, Australia. (*Aust. J. appl. Sci.*)

Australian Journal of Physics, Commonwealth Scientific and Industrial Research Organization, 314 Albert Street, East Melbourne C.2, Australia. (*Aust. J. Phys.*)
A.W.A. Technical Review, Amalgamated Wireless (Australasia) Ltd., Sydney, Australia. (*A.W.A. tech. Rev.*)

B.B.C. Quarterly, British Broadcasting Corporation, 35 Marylebone High Street, London, W.C.2, England. (*B.B.C. Quart.*)
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 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, Academy of Sciences, Moscow, U.S.S.R. (In Russian.) (*Bull. Acad. Sci. U.R.S.S., (a) sér. phys., (b) sér. géophys., (c) tech. Sci.*)
Bulletin de l'Association suisse des Electriciens, S. A. Fachschriften-Verlag und Buchdruckerei, Stauffacherquai 36-40, Zürich 4, Switzerland. (*Bull. schweiz. elektrotech. Ver.*)
Bulletin de la Société française des Electriciens, 55 Quai des Grands-Augustins, Paris 6^e, France. (*Bull. Soc. franç. Elect.*)

Câbles et Transmission, Sotelec, 16 rue de la Baume, Paris 8^e, France. (*Câbles & Transm.*)
Canadian Journal of Physics, National Research Council, Ottawa 2, Canada. (*Canad. J. Phys.*)
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., Academy of Sciences, Moscow, U.S.S.R. (In Russian.) (*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, Bouvier 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 Times, Sardinia House, Sardinia Street, London, W.C.2, England. (*Elect. Times*)
Electronic Engineering, 28 Essex Street, London, W.C.2, England. (*Electronic Engng.*)
Electronics, 99-129 North Broadway, Albany 1, N. Y., U.S.A. (*Electronics*)
Elektrotechnik und Maschinenbau, Journal of the Elektrotechnischer Verein Österreichs, Springer Verlag, Wien 1. MÖlkerbastei 5, Austria. (*Elektrotech. u. Maschinenb.*)
Elektrotechnische Zeitschrift, Edition A & B, VDE-Verlag, Wuppertal-Elberfeld, Brillerstrasse 99, Germany. (*Elektrotech. Z.*)
Endeavour, Imperial Chemical Industries, 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.*)

Fernmelde-technische Zeitschrift, Vieweg & Sohn, Braunschweig, Burgplatz 1, Germany. (*Fernmelde- tech. Z.*)
Frequenz, Verlag Schiele & Schön, Berlin S.W. 29, Boppstrasse 10, Germany. (*Frequenz*)
Funk und Ton, Verlag für Radio-Foto-Kinotechnik

G.m.b.H., Berlin-Borsigwalde, Eichborndamm 141-167, Germany. (*Funk u. Ton*)

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.*)

Helvetica Physica Acta, Journal of the Société suisse de Physique, Editions Birkhäuser, Bâle 10, Switzerland. (*Helv. phys. Acta*)

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., 242 Marylebone Road, London, N.W.1, England. (*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. Bri. Instn. Radio Engrs.*)

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 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 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. Televis. Engrs.*)

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

Metal Treatment, 17-19 John Adam Street, Adelphi, London, W.C.2, England. (*Metal Treatm.*)

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

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. Plasti.*)

- 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. (*Nachr. Tech.*)
- 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 Imerio 34, Italy. (*Nuovo Cim.*)
- Observatory, Royal Observatory, Herstmonceux Castle, Hailsham, Sussex, England. (*Observatory*)
- Onde électrique, 40 rue de Seine, Paris 6°, France. (*Onde élect.*)
- Optik, Wissenschaftliche Verlagsgesellschaft m.b.H., Stuttgart 1, Postfach 40, Germany. (*Optik, Stuttgart*)
- Österreichische Zeitschrift für Telegraphen-Telephon-Funk- und Fernsehtechnik, Springer Verlag, Wien 1, Mölkerbastei 5, Austria. (*Ost. Z. Teleph. Telegr. Funk Fernsehtech.*)
- Philips Research Reports, N.V. Philips Gloeilampenfabrieken, Eindhoven, Netherlands. (*Philips Res. Rep.*)
- Philips Technical Review, (as for Philips Research Reports). (*Philips tech. 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, Cambridge University Press, Bentley House, London, N.W.1, England. (*Phil. Trans.*)
- Physica, Journal of the Dutch Physical Society, Bijlhouwerstraat 6, Utrecht, Netherlands. (*Physica*)
- Physical Review, American Institute of Physics, 57 East 55th Street, New York 22, N.Y., U.S.A. (*Phys. Rev.*)
- 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, Ministero P.T., Viale Trastevere 189, Roma, Italy. (*Poste e Telecomunicazioni*)
- Proceedings of the Cambridge Philosophical Society, Cambridge University Press, Bentley House, 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 I, II, III and IV, 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. Inst 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.*)
- QST, American Radio Relay League Inc., 38 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.*)
- Radio-Electronic Engineering (including Communication Engineering and TV and Radio Engineering), Ziff-Davis Publishing Company, 366 Madison Avenue, New York 17, N.Y., U.S.A. (*Radio-Electronic Engng*)
- Radio Technik, Wien VI, Mariahilferstrasse 71, Austria. (*Radio Tech., Vienna*)
- Radio & Television News, Ziff-Davis Publishing Company, 366 Madison Avenue, New York 17, N.Y., U.S.A. (*Radio & Telev. News*)
- RCA Review, RCA Laboratories Division, Princeton, N.J., U.S.A. (*RCA Rev.*)
- Report on Ionosphere Research in Japan, Maruzen Publishing Co., P.O. Box 605 Central, 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 de Telecomunicacion, Palacio de Comunicaciones, Madrid, Spain. (*Rev. Telecomunicación, Madrid*)
- Revista Telefonica Electronica, Arbó Editores, Buenos Aires, Argentina. (*Rev. electr. Electronica, Buenos Aires*)
- Revue générale de l'Électricité, 12 place Henri Bergson, Paris 8°, France. (*Rev. gen. Élect.*)
- Revue HF (formerly HF), 55 rue Defacqz, Brussels, Belgium. (*Rev. HF, Brussels*)
- Revue d'Optique, 3 & 5 Boulevard Pasteur, Paris 15°, France. (*Rev. d'Optique*)
- Revue scientifique, 4 rue Pomereu, Paris 16°, 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, 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.*)
- Sylvania Technologist, Sylvania Electric Products Inc., 1740 Broadway, New York 19, 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 Hausmitteilungen des Nordwestdeutschen Rundfunks, H. H. Nölke Verlag, Hamburg 20, Hegestrasse 40, Germany. (*Tech. Hausmitt. Nordw.Dtsch. Rdfunks*)
- Technische Mitteilungen, Journal of the Swiss Post Office, Direction générale PTT, Berne, Speichergasse 6, Switzerland. (*Tech. Mitt. schweiz. Telegr.-Teleph. Verw.*)
- Tele-Tech, Caldwell-Clements Inc., 480 Lexington Avenue, New York 17, N.Y., U.S.A. (*Tele-Tech*)
- Telefunken Zeitung, Telefunken G.m.b.H., Berlin S.W.61, Mehringdamm 32-34, Germany. (*Telefunken Zig*)
- Télévision, 9 rue Jacob, Paris 6°, France. (*Télévision*)
- Tellus, Lindhagensgatan 124, Stockholm, Sweden. (*Tellus*)
- Tijdschrift van het Nederlands Radiogenootschap, Frans van Merisstraat 61, Amsterdam-Z., Netherlands. (*Tijdschr. ned. Radiogenoot.*)
- Toute la Radio, 9 rue Jacob, Paris 6°, 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°, France. (*TSF et TV*)
- Le Vide, Journal of the Société française des Ingénieurs Techniciens du Vide, 44 rue de Rennes, Paris 6°, 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, Heidelberg, Neuenheimer Landstrasse 24, Germany. (*A. angew. Phys.*)
- Zeitschrift für Meteorologie, Akademieverlag G.m.b.H., Berlin N.W.7, Schiffbauerdamm 19, Germany. (*Z. Met.*)
- Zeitschrift für Naturforschung, Tübingen, Mathildenstrasse 29, Germany. (*Z. Naturf.*)
- Zeitschrift für Physik, Springer Verlag, Heidelberg, Neuenheimer Landstrasse 24, Germany. (*Z. Phys.*)
- Zhurnal eksperimentalnoi i teoreticheskoi Fiziki, Academy of Sciences, Moscow, U.S.S.R. (*Zh. eksp. teor. Fiz.*)
- Zhurnal tekhnicheskoi Fiziki, Academy of Sciences, Moscow, U.S.S.R. (*Zh. tekh. Fiz.*)

