A Selected Bibliography of Publications by, and about, Paul Adrien Maurice Dirac

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$(1+1)$ [Das93]. $(2+1)$ [JM99]. $-1/2$ [CT67a]. $-1/2, 1/2, 3/2, 5/2$ [Mac98]. $-\frac{1}{2}, \frac{1}{2}$ [CT67b]. 1 [CG07]. $1+1$ [Fei02]. 1/2 [CT67a, FA01, Ogu96, dB51, dB52a]. 2.7° [Noe73]. **$250.00** [War96]. **$26.00** [Ryc17]. **$29.95** [RS10, Dys10]. 3 [RRS06]. $3+1$ [Nak00]. $3+2$ [Dir63b]. 3/2 [CT67a]. **$44.50** [Dre90]. **$49.50** [Sch85]. **$7.50** [Suc67]. ${}_6$ [DN96]. α [BM98, LT04]. $\alpha, \beta, \gamma, \delta$ [Som36]. c [IC04, MBS02, Mag15]. D [DSP03]. δ [DEŠ89, IP56, IP57, Lut07, Sch72]. e [IC04, MBS02]. e^2 [CP68]. ϵ [GGS04]. $\frac{3}{2}$ [CT67b]. G [AWW+81, Dir75f, Dir78b, Dir80g, Dir82f]. G_F [FA10]. $\mathrm{Gr}_2(\mathrm{C}^{m+2})$ [Mil98]. $H^s(\mathbf{R}^3)$ [EV97]. $\hbar$ [IC04]. m_p/m_e [BBSF10, FK07]. $\mathcal{F}_p(\eta) = 1/\Gamma(p+1)\int_0^\infty[\epsilon^p/(1+e^{\epsilon-\eta})]d\epsilon$ [GFG01]. $SU(2)$ [yRSBSV99]. H_2 [SBK+08]. N [Ata89, KY01, MHN98, MB90, Mor85, Won90]. $\nabla^2 n/n$ [MHN98]. $\nabla n/n$ [MHN98]. π [JT10]. q [CPV10, JT10]. R [Szm98, Szm99]. $\mathbf{R}^n$ [Bet83]. r^t [BBR85]. $s > 1$ [EV97]. $\mathrm{SL}(2, \mathbf{C})$ [Hos82, Hos83]. $\mathrm{SO}(4)$ [LH86]. $\mathrm{SO}(4,1)$ [BC69]. $\mathrm{sp}(4, \mathbf{R})$ [Lee95]. $\mathrm{SU}(N)$ [LH86]. SU_2

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[dB52b] Louis de Broglie. Sur l'introduction des idées d'onde-pilote et de double solution dans la théorie de l'électron de Dirac. (French) [On the introduction of pilot-wave and double-solution ideas in Dirac's electron theory]. *Comptes rendus de l'Académie des sciences, Paris*, 235(??):557–??, ???? 1952. ISSN 0001-4036 (print), 2419-6304 (electronic).

deBroglie:1984:QST

[dBDW+84] Louis de Broglie, P. A. M. (Paul Adrien Maurice) Dirac, Eugene Paul Wigner, A. O. (Asim Orhan) Barut, Alwyn Van der Merwe, and Jean-Pierre Vigier, editors. *Quantum, space, and time — the quest continues: studies and essays in honour of Louis de Broglie, Paul Dirac, and Eugene Wigner*. Cambridge monographs on physics. Cambridge University Press, Cambridge, UK, 1984. ISBN 0-521-31911-0 (paperback). vii + 659 pp. LCCN QC174.125 .Q376 1984.

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[dG97] Pierre-Gilles de Gennes. *Soft interfaces: the 1994 Dirac Memorial Lectures*. Cambridge University Press, Cambridge, UK, 1997. ISBN 0-521-56417-4 (hardback). x + 117 pp. LCCN QC173.4.I57 G46 1997. URL http://cup.es/aus/catalogue/catalogue.asp?isbn=9780511822322; http://www.loc.gov/catdir/description/cam028/96045963.html; http://www.loc.gov/catdir/toc/cam021/96045963.html. With an introduction by Sir Sam Edwards.

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Dirac:1978:DP

[DHS78] Paul A. M. Dirac, H. Hora, and J. R. Shepanski. *Directions in physics: lectures delivered during a visit to Australia and New Zealand, August–September 1975.* Wiley-Interscience, New York, NY, USA, 1978. ISBN 0-471-02997-1. ix + 95 + 1 pp. LCCN QC71 .D55. URL http://adsabs.harvard.edu/abs/1978dpld.book.....D; http://hooke.lib.cam.ac.uk/cgi-bin/bib_seek.cgi?cat=ul&bib=1206117. Foreword by Sir Mark Oliphant. Lecture 1: The Development of Quantum Mechanics. Lecture 2: Quantum Electrodynamics. Lecture 3: Magnetic Monopoles. Lecture 4: A Positive Energy Relativistic Wave Equation. Lecture 5: Cosmological and Gravitational Constants.

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[Dic64] Robert H. (Robert Henry) Dicke, editor. *The Theoretical Significance of Experimental Relativity.* Documents on modern physics. Gordon and Breach, New York, NY, USA, 1964. xii + 153 pp. LCCN QC6 .D476.

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[Dir24b] P. A. M. Dirac. Note on the Doppler principle and Bohr's frequency condition. *Mathematical proceedings of the Cambridge Philosophical Society*, 22(3):432–433, May 19, 1924. CODEN PCPSA4. ISSN 0008-1981.

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[Dir25a] P. A. M. Dirac. The adiabatic hypothesis for magnetic fields. *Mathematical proceedings of the Cambridge Philosophical Society*, 23(1):69–72, ???? 1925. CODEN PCPSA4. ISSN 0008-1981.

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Dirac:1925:CSE

[Dir25c] P. A. M. Dirac. The conditions for statistical equilibrium between atoms, electrons and radiation. *Proceedings of the Royal*

Society of London. Series A, Mathematical and physical sciences, 106(739):581–596, November 1, 1925. CODEN PRLAAZ. ISSN 0080-4630. URL `http://www.jstor.org/stable/94294`.

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[Dir25d] P. A. M. Dirac. The effect of Compton scattering by free electrons in a stellar atmosphere. *Monthly Notices of the Royal Astronomical Society*, 85(??):825–832, June 1925. CODEN MNRAA4. ISSN 0035-8711 (print), 1365-2966 (electronic). URL `http://adsabs.harvard.edu/full/1925MNRAS..85..825D`.

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[Dir25e] P. A. M. Dirac. The fundamental equations of quantum mechanics. *Proceedings of the Royal Society of London. Series A, Mathematical and physical sciences*, 109(752):642–653, December 1, 1925. CODEN PRLAAZ. ISSN 0080-4630. URL `http://www.jstor.org/stable/94441`. Reprinted in [Dir67a]. Russian translation in [Dir77d].

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[Dir26a] P. A. M. Dirac. The elimination of the nodes in quantum mechanics. *Proceedings of the Royal Society of London. Series A, Mathematical and physical sciences*, 111(757):281–305, May 1, 1926. CODEN PRLAAZ. ISSN 0080-4630. URL `http://www.jstor.org/stable/94909`. Russian translation in [Dir03b, Vol. II, pp. 91ff].

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[Dir26b] P. A. M. Dirac. On quantum algebra. *Mathematical proceedings of the Cambridge Philosophical Society*, 23(4):412–418, 1926. CODEN MPCPCO. ISSN 0305-0041, 1469-8064. Russian translation in [Dir03b, Vol. II, pp. 140ff].

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[Dir26c] P. A. M. Dirac. On the theory of quantum mechanics. *Proceedings of the Royal Society of London. Series A, Mathematical and physical sciences*, 112(762):661–667, October 1, 1926. CODEN PRLAAZ. ISSN 0080-4630. URL `http://www.jstor.org/stable/94692`. Russian translation in [Dir03b, Vol. II, pp. 147ff].

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[Dir27b] P. A. M. Dirac. The physical interpretation of the quantum dynamics. *Proceedings of the Royal Society of London. Series A, Mathematical and physical sciences*, 113(765):621–641, January 1, 1927. CODEN PRLAAZ. ISSN 0080-4630. URL `http://www.jstor.org/stable/94646`. Russian translation in [Dir03b, Vol. II, pp. 171ff].

Dirac:1927:QTD

[Dir27c] P. A. M. Dirac. The quantum theory of dispersion. *Proceedings of the Royal Society of London. Series A, Mathematical and physical sciences*, 114(769):710–728, May 2, 1927. CODEN PRLAAZ. ISSN 0080-4630. URL `http://www.jstor.org/stable/94735`.

Dirac:1927:QTE

[Dir27d] P. A. M. Dirac. The quantum theory of the emission and absorption of radiation. *Proceedings of the Royal Society of London. Series A, Mathematical and physical sciences*, 114(767): 243–265, March 1, 1927. CODEN PRLAAZ. ISSN 0080-4630. URL `http://www.jstor.org/stable/94746`. Russian translation in [Dir03b, Vol. II, pp. 285ff].

Dirac:1927:QS

[Dir27e] P. A. M. Dirac. Über die Quantenmechanik der Stoßvorgänge. (German) [On the quantum mechanics of collisions]. *Zeitschrift für Physik*, 44(??):585–595, 1927. CODEN ZEPYAA. ISSN 0044-3328. Russian translation in [Dir03b, Vol. II, pp. 191ff].

Dirac:1928:DFR

[Dir28a] P. A. M. Dirac. Discussion following reports of Bohr and Heisenberg. In ????, editor, *Electrons and photons (5th Conseil de physique de l'Institut International de Physique, Solvay, 24–29 October 1927, Bruxelles)*, pages 258–263. Gauthier-Villars et cie, Paris, France, 1928. LCCN ????

Dirac:1928:QTEa

[Dir28b] P. A. M. Dirac. The quantum theory of the electron. I. *Proceedings of the Royal Society of London. Series A, Mathematical and physical sciences*, 117(778):610–624, February 1, 1928. CODEN PRLAAZ. ISSN 0080-4630. URL `http://www.jstor.org/stable/94981`.

Dirac:1928:QTEb

[Dir28c] P. A. M. Dirac. The quantum theory of the electron. II. *Proceedings of the Royal Society of London. Series A, Mathematical and physical sciences*, 118(779):351–361, March 1, 1928. CODEN PRLAAZ. ISSN 0080-4630. URL `http://www.jstor.org/stable/94909`.

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[Dir28d] P. A. M. Dirac. Über der Quantentheorie des Elektrons. (German) [On the quantum theory of electrons]. *Physikalische Zeitschrift*, 29(??):561–563, ???? 1928. CODEN PHZTAO. ISSN 0369-982X.

Dirac:1928:QEGb

[Dir28e] P. A. M. Dirac. Zur quantentheorie des elektrons. (German) [On the quantum theory of electrons]. In Hans Falkenhagen, editor, *Leipziger Vorträge 1928: Quantentheorie und Chemie*, pages 85–94. Verlag von S. Hirzel, Leipzig, Germany, 1928. LCCN ???? Lecture given in June 1928; manuscript translated to German by A. Eucken.

Dirac:1928:QE

[Dir28f] P. A. M. Dirac. Zur Quantentheorie des Elektrons. (German) [Toward a quantum theory of the electron]. *Leipziger Vorträge*, ??(??):85–94, ???? 1928.

Dirac:1929:BSQ

[Dir29a] P. A. M. Dirac. The basis of statistical quantum mechanics. *Mathematical proceedings of the Cambridge Philosophical Society*, 25(1):62–66, 1929. CODEN MPCPCO. ISSN 0305-0041, 1469-8064. Russian translation in [Dir03b, Vol. II, pp. 208ff].

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[Dir29b] P. A. M. Dirac. Quantum mechanics of many electron systems. *Proceedings of the Royal Society of London. Series A, Mathematical and physical sciences*, 123(792):714–733, April 6, 1929. CODEN PRLAAZ. ISSN 0080-4630. URL `http://www.jstor.org/stable/95222`. Russian translation in [Dir03b, Vol. II, pp. 213ff].

Dirac:1930:AM

[Dir30a] P. A. M. Dirac. Approximate methods. Manuscript in English held at Churchill College Archives (Cambridge, England). This is the text of chapter XIA of the Russian edition of [Dir30f] (M.-L. GTTI, 1932; translated by M. P. Bronshtein, ed. D. D. Iwanenko), pp. 243-257, with the note 'Author's addition to the Russian edition' [note from [DP86, p. 179, ref. 31]]., 1930.

Dirac:1930:PQG

[Dir30b] P. A. M. Dirac. *Die Prinzipien der Quantenmechanik. (German) [The Principles of Quantum Mechanics].* Verlag von S. Hirzel, Leipzig, Germany, 1930. xi + 274 pp. LCCN ???? Translated by Werner Bloch from the English original.

Dirac:1930:NEP

[Dir30c] P. A. M. Dirac. Note on exchange phenomena in the Thomas atom. *Mathematical proceedings of the Cambridge Philosophical Society*, 26(3):376–385, 1930. CODEN MPCPCO. ISSN 0305-0041, 1469-8064. Russian translation in [Dir03b, Vol. II, pp. 268ff].

Dirac:1930:NID

[Dir30d] P. A. M. Dirac. Note on the interpretation of the density matrix in the many-electron problem. *Mathematical proceedings of the Cambridge Philosophical Society*, 27(2):240–243, ???? 1930. CODEN PCPSA4. ISSN 0008-1981. Russian translation in [Dir03b, Vol. II, pp. 279ff].

Dirac:1930:AEP

[Dir30e] P. A. M. Dirac. On the annihilation of electrons and protons. *Mathematical proceedings of the Cambridge Philosophical Society*, 26(3):361–375, 1930. CODEN MPCPCO. ISSN 0305-0041, 1469-8064.

Dirac:1930:PQM

[Dir30f] P. A. M. Dirac. *The Principles of Quantum Mechanics*. International series of monographs on physics (Oxford, England). Clarendon Press, Oxford, UK, 1930. x + 257 pp. LCCN QC174.12 .D57 1930. On page 96 of this book, Dirac introduces the notation $\hbar = h/(2\pi)$, where "$\hbar$ is a new universal constant having the dimensions of action." That symbol is actually a letter in the Serbian alphabet (Unicode character U045B, Cyrillic small letter tshe), but it is unknown to this bibliographer whether Dirac knew that. It seems more likely that he simply added a stroke across h as a convenient indication of its division by 2π.

Dirac:1930:P

[Dir30g] P. A. M. Dirac. The proton. *Nature*, 126(3181):605–606, October 18, 1930. CODEN NATUAS. ISSN 0028-0836 (print), 1476-4687 (electronic). URL `http://www.nature.com/nature/journal/v126/n3181/pdf/126605a0.pdf`.

Dirac:1930:QPM

[Dir30h] P. A. M. Dirac. Quelques problèmes de mécanique quantique. *Annales de l'Institut Henri Poincaré*, 1(4):357–400, 1930.

CODEN AIHPA2. ISSN 0365-320x (print), 2400-4855 (electronic). URL `http://www.numdam.org/item?id=AIHP_1930__1_4_357_0`. Baed on lectures given at the Institut Henri Poincaré, 13, 14, 19, and 20 December, 1929.

Dirac:1930:TEPa

[Dir30i] P. A. M. Dirac. A theory of electrons and protons. *Proceedings of the Royal Society of London. Series A, Mathematical and physical sciences*, 126(801):360–365, January 1, 1930. CODEN PRLAAZ. ISSN 0080-4630. URL `http://www.jstor.org/stable/95359`.

Dirac:1930:TEPb

[Dir30j] P. A. M. Dirac. Theory of electrons and protons. *Uspekhi Fizicheskikh Nauk*, ??(9):581–591, September 1930. CODEN UFNAAG. ISSN 0042-1294 (print), 1996-6652 (electronic). URL `http://ufn.ru/ru/articles/1930/9/a/`.

Dirac:1931:PMQ

[Dir31a] P. A. M. Dirac. *Les principes de la mécanique quantique. (French) [The principles of quantum mechanics]*, volume 21. Les Presses Universitaires de France, Paris, France, 1931. viii + 314 pp. URL `http://longstreet.typepad.com/books/2011/03/first-french-edition-of-diracs-quantum-mechanics-1931.html`. Recueil des conférences-rapports de documentation sur la physique. Translated by Al. Proca and J. Ullmo.

Dirac:1931:QSE

[Dir31b] P. A. M. Dirac. Quantised singularities in the electromagnetic field. *Proceedings of the Royal Society of London. Series A, Mathematical and physical sciences*, 133(821):60–72, September 1, 1931. CODEN PRLAAZ. ISSN 0080-4630. URL `http://www.jstor.org/stable/95639`. Russian translation in [Dir03b, Vol. II, pp. 388–??].

Dirac:1932:OKM

[Dir32a] P. A. M. Dirac. *Osnovy Kvantovoĭ Mekhaniki. (Russian) [The Elements of Quantum Mechanics]*. Gostekhizdat, Moscow and Leningrad, USSR, 1932. ???? pp. LCCN ???? See also [Dir02, Vol. I, pp. 303ff]. Contains author's supplement to the Russian edition: Priblizhennye metody (Approximate methods).

Dirac:1932:RQM

[Dir32b] P. A. M. Dirac. Relativistic quantum mechanics. *Proceedings of the Royal Society of London. Series A, Mathematical and physical sciences*, 136(829):453–464, May 2, 1932. CODEN PRLAAZ. ISSN 0080-4630. URL `http://www.jstor.org/stable/95782`. Russian translation in [Dir03b, Vol. II, pp. 399ff].

Dirac:1933:HVC

[Dir33a] P. A. M. Dirac. Homogeneous variables in classical dynamics. *Mathematical proceedings of the Cambridge Philosophical Society*, 29(3):389–400, ???? 1933. CODEN PCPSA4. ISSN 0008-1981. Reprinted in [Sch58]. Russian translation in [Dir03b, Vol. II, pp. 461ff].

Dirac:1933:LQM

[Dir33b] P. A. M. Dirac. The Lagrangian in quantum mechanics. *Physikalische Zeitschrift der Sowjetunion*, 3(1):64–72, ???? 1933. CODEN PHZSAL. ISSN 0369-9811. URL `http://ebooks.worldscinet.com/ISBN/9789812567635/9789812567635_0003.html`. Reprinted in [Sch58, 312–320], [Dir05a], and [FBD05, 111–119].

Dirac:1933:SPQ

[Dir33c] P. A. M. Dirac. Statement of a problem in quantum mechanics. *Journal of the London Mathematical Society*, 8(??):274–277, October 1933. CODEN JLMSAK. ISSN 0024-6107 (print), 1469-7750 (electronic).

Dirac:1934:DID

[Dir34a] P. A. M. Dirac. Discussion of the infinite distribution of electrons in the theory of the positron. *Mathematical proceedings of the Cambridge Philosophical Society*, 30(2):150–163, ???? 1934. CODEN PCPSA4. ISSN 0008-1981.

Dirac:1934:TPR

[Dir34b] P. A. M. Dirac. Teoriya pozitrona. (Russian) [Theory of the positron]. In M. P. Bronstein et al., editors, *Atomnoe yadro: Sbornik dokladov i vsesoyoznoi yadernoi konferentsii [Leningrad, 24–30 September 1933]*, pages 129–144. Izdatelstvo, Akademii Nauk SSR, Leningrad, USSR, 1934. LCCN ????

Dirac:1934:TDP

[Dir34c] P. A. M. Dirac. Théorie du positron. (French) [Theory of the positron]. In Cockcroft et al. [CCJ+34], pages 203–230. LCCN ???? Address given at the Solvay Conference, October 22–29, 1933. Russian translation in [Dir03b, Vol. II, pp. 431ff].

Dirac:1934:TEP

[Dir34d] P. A. M. Dirac. *Theory of Electrons and Positrons*. A. Norstedt och Sönner, Stockholm, Sweden, 1934. 6 pp. LCCN ????

Dirac:1935:EWE

[Dir35a] P. A. M. Dirac. The electron wave equation in de Sitter space. *Annals of Mathematics (2)*, 36(3):657–669, 1935. CODEN ANMAAH. ISSN 0003-486X (print), 1939-8980 (electronic). URL `http://www.jstor.org/stable/1968649`; `http://www.jstor.org/stable/pdfplus/1968649.pdf`.

Dirac:1935:LQE

[Dir35b] P. A. M. Dirac. Lectures on quantum electrodynamics: 1934–1935. Report, Institute for Advanced Study, Princeton, NJ, USA, 1935. 71 pp. Notes by Boris Podolsky (first semester) and Nathan Rosen (second semester).

Dirac:1935:PQM

[Dir35c] P. A. M. Dirac. *The Principles of Quantum Mechanics*, volume 27 of *International series of monographs on physics (Oxford, England)*. Clarendon Press, Oxford, UK, second edition, 1935. xi + 300 pp.

Dirac:1936:DCE

[Dir36a] P. A. M. Dirac. Does conservation of energy hold in atomic processes? *Nature*, 137(3460):298–299, February 22, 1936. CODEN NATUAS. ISSN 0028-0836 (print), 1476-4687 (electronic). URL `http://www.nature.com/nature/journal/v137/n3460/pdf/137298a0.pdf`. See also [Pei36].

Dirac:1936:RWE

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Peter Aldor. Correspondents include Eva Aldor, Frank Aydelotte, Hans Albrecht Bethe, Garrett Birkhoff, S. Chandrasekhar, George Bernard Dantzig, P. A. M. Dirac, Carl Eckart, Enrico Fermi, Abraham Flexner, George Gamow, Kurt Gödel, Herman Heine Goldstine, Werner Heisenberg, L. van Hove, Cuthbert Corwin Hurd, Pascual Jordan, R. H. Kent, George B. Kistiakowsky, Oskar Morgenstern, J. Robert Oppenheimer, Rudolf Ortvay, Wolfgang Pauli, Marshall H. Stone, Lewis L. Strauss, Abraham Haskel Taub, Edward Teller, Stanislaw M. Ulam, Oswald Veblen, Klara Dan Von Neumann, Warren Weaver, Hermann Weyl, Norbert Wiener, and Eugene Paul Wigner. Gift, Marina Von Neumann Whitman, 1974–1975. Gift, Nicholas A. Vonneuman, 1993.

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