

List of Publications

Charles W. Misner

Books and Thesis

- A *Feynman Quantization of General Relativity*, Charles W. Misner
(Ph.D. thesis, Princeton University, June 1957).
- B *Gravitation*, Charles W. Misner, Kip S. Thorne and John Archibald
Wheeler (W. H. Freeman and Co., San Francisco 1973) 1279 pp.
- B' *Gravitatsiya*, (3 Vols.) Charles W. Misner, Kip S. Thorne and John
Archibald Wheeler, translated by A. G. Polnarev (Pub. Co. 'Mir',
Moscow 1977).
- B'' *Gravitation*, Charles W. Misner, Kip S. Thorne and John Archibald
Wheeler; Chinese translation by Li Shuxian with Chen Bingqian,
Ma Er, and Chen Xianmou (Chen Chung Book Co. Ltd., Tapei,
1997) iv + 1294 pp.
- C *Spreadsheet Physics*, Charles W. Misner and Patrick J. Cooney
(Addison-Wesley Pub. Co., Reading, Mass., 1991) xviii + 228 pp.

Journal Articles

- 1=A “Feynman Quantization of General Relativity”, Charles W. Misner,
Reviews of Modern Physics **29**, 497–509 (1957).
- 2 “Geometrodynamics”, Charles W. Misner and J. A. Wheeler, *Annals
of Physics* **2**, 525–603 (1957).
- 3 “Some New Conservation Laws”, David Finkelstein and Charles W.
Misner, *Annals of Physics* **6**, 230–243 (1959).
- 4 “Active Gravitational Mass”, Charles W. Misner and Peter Putnam,
Physical Review **116**, 1045–1046 (1959).

- 5 “Dynamical Structure and Definition of Energy in General Relativity”, R. Arnowitt, S. Deser, and C. W. Misner, *Phys. Rev.* **116**, 1322–1330 (1959).
- 6 “Canonical Variables, Expression for Energy, and the Criteria for Radiation in General Relativity”, R. Arnowitt, S. Deser, and C. W. Misner, *Il Nuovo Cimento (X)* **15**, 487–491 (1959).
- 7 “Canonical Variables for General Relativity”, R. Arnowitt, S. Deser, and C. W. Misner, *Physical Review* **117**, 1595–1602 (1960).
- 8 “Finite Self-energy of Classical Point Particles”, R. Arnowitt, S. Deser, and C. W. Misner, *Physical Review Letters* **4**, 375–377 (1960).
- 9 “Energy and the Criteria for Radiation in General Relativity”, R. Arnowitt, S. Deser, and C. W. Misner, *Physical Review* **118**, 1100–1104 (1960).
- 10 “Wormhole Initial Conditions”, Charles W. Misner, *Physical Review* **118**, 1110–1111 (1960).
- 11 “Note on the Positive-definiteness of the Energy of the Gravitational Field”, R. Arnowitt et al., *Annals of Physics* **11**, 116–121 (1960).
- 12 “Consistency of the Canonical Reduction of General Relativity”, R. Arnowitt et al., *Journal of Mathematical Physics* **1**, 434–439 (1960).
- 13 “Gravitational-Electromagnetic Coupling and the Classical Self-energy Problem”, R. Arnowitt et al., *Physical Review* **120**, 313–320 (1960).
- 14 “Interior Schwarzschild Solutions and Interpretation of Source Terms”, R. Arnowitt et al., *Physical Review* **120**, 321–324 (1960).
- 15 “Heisenberg Representation in Classical General Relativity”, R. Arnowitt, S. Deser, and C. W. Misner, *Il Nuovo Cimento (X)* **19**, 668–681 (1961).
- 16 “The Wave Zone in General Relativity”, R. Arnowitt, S. Deser, and C. W. Misner, *Physical Review* **121**, 1556–1566 (1961).

- 17 “Coordinate Invariance and Energy Expressions in General Relativity”, R. Arnowitt et al., *Physical Review* **122**, 997–1006 (1961).
- 18 “Gravitational Field Energy and g_{00} ”, Charles W. Misner, *Physical Review* **130**, 1590–1594 (1963).
- 19 “Fermi Normal Coordinates and Some Basic Concepts in Differential Geometry”, F. K. Manasse and C. W. Misner, *J. math. Phys.* **4**, 735–745 (1963); <http://link.aip.org/link/?JMAPAQ/4/735/1>
- 20 “The Flatter Regions of Newman, Unti, and Tamburino’s Generalized Schwarzschild Space”, Charles W. Misner, *J. math. Phys.* **4**, 924–937 (1963); <http://link.aip.org/link/?JMAPAQ/4/924/1>
- 21 “The Method of Images in Geometrostatics”, Charles W. Misner, *Annals of Physics* **24**, 102–117 (1963).
- 22 “High-density Behavior and Dynamical Stability of Neutron Star Models”, C. W. Misner and H. S. Zepolsky, *Physical Review Letters* **12**, 635–637 (1964).
- 23 “Relativistic Equations for Adiabatic, Spherically Symmetric Gravitational Collapse” Charles W. Misner, and David H. Sharp, *Physical Review* **136**, B571–B576 (1964).
- 24 “Relativistic Equations for Spherical Gravitational Collapse with Escaping Neutrinos”, Charles W. Misner, *Physical Review* **137**, B1360–B1364 (1965).
- 25 “Vaidya’s Radiating Schwarzschild Metric”, R. W. Lindquist, R. A. Schwartz and C. W. Misner, *Physical Review* **137**, B1364–B1368 (1965).
- 26 “Spherical Gravitational Collapse with Energy Transport by Radiative Diffusion”, C. W. Misner and D. H. Sharp, *Physics Letters* **15**, 279–281 (1965).
- 27 “Minimum Size of Dense Source Distributions in General Relativity”, R. Arnowitt et al., *Annals of Physics* **33**, 88–107 (1965).
- 28 “Observer Time as a Coordinate in Relativistic Spherical Hydrodynamics”, Walter C. Hernandez, Jr., and Charles W. Misner, *Astrophysical Journal* **143**, 452–464 (1966).

- 29 “Gravitational Field Equations for Sources with Axial Symmetry and Angular Momentum”, Richard A. Matzner and Charles W. Misner, *Physical Review* **154**, 1229–1232 (1967).
- 30 “Transport Processes in the Primordial Fireball”, Charles W. Misner, *Nature* **214**, 40–41 (1967).
- 31 “Neutrino Viscosity and the Isotropy of Primordial Blackbody Radiation”, Charles W. Misner, *Physical Review Letters* **19**, 533–535 (1967).
- 32 “The Isotropy of the Universe”, C. W. Misner, *Astrophysical Journal* **151**, 431–457 (1968).
- 33 “A Singularity-free Empty Universe”, C. W. Misner and A. H. Taub, *Zh. Eksp. Teor. Fiz.* **55**, 233–255 (1968); English original in *Soviet Physics—JETP* **28**, 122–133 (1969).
- 34 “Mix-master Universe”, Charles W. Misner, *Physical Review Letters* **22**, 1071–1074 (1969).
- 35 “Cohesive Force of Metals”, G. H. Wannier, C. Misner, and G. Schay, Jr., *Physical Review* **185**, 983–984 (1969).
- 36 “Quantum Cosmology. I”, Charles W. Misner, *Physical Review* **186**, 1319–1327 (1969).
- 37 “Absolute Zero of Time”, Charles W. Misner, *Physical Review* **186**, 1328–1333 (1969).
- 38 “Dissipative Effects in the Expansion of the Universe. I”, R. A. Matzner and C. W. Misner, *Astrophysical Journal* **171**, 415–432 (1972).
- 39 “Interpretation of Gravitational-Wave Observations”, C. W. Misner, *Physical Review Letters* **28**, 994–997 (1972).
- 40 “Gravitational Synchrotron Radiation in the Schwarzschild Geometry”, C. W. Misner, R. A. Breuer, D. R. Brill, P. L. Chrzanowski, H. G. Hughes III, and C. M. Pereira, *Physical Review Letters* **28**, 998–1001 (1972).
- 41 “A Minisuperspace Example: The Gowdy T^3 Cosmology”, Charles W. Misner, *Physical Review D* **8**, 3271–3285 (1973).

- 42 “Geodesic Synchrotron Radiation”, R. A. Breuer, P. L. Chrzanowski, H. G. Hughes III, and C. W. Misner, *Physical Review D* **8**, 4510–4524 (1973).
- 43 “Geodesic Synchrotron Radiation in the Kerr Geometry by the Method of Asymptotically Factorized Green’s Functions”, P. L. Chrzanowski and C. W. Misner, *Physical Review D* **10**, 1701–1721 (1974).
- 44 “Harmonic Maps as Models for Physical Theories”, Charles W. Misner, *Physical Review D* **18**, 4510–4524 (1978).
- 45 “Relativistic Effects on an Earth-Orbiting Satellite in the Barycenter Coordinate System”, C. F. Martin, M. H. Torrence, and C. W. Misner, *Journal of Geophysical Research* **90**, 9403–9410 (1985).
- 46 “Problem: Zero-gravity Pendulum”, C. W. Misner, *American Journal of Physics* **55**, 657–668 (1987).
- 47 “Yilmaz Cancels Newton”, C. W. Misner, *Il Nuovo Cimento B* **114**, 1079–1085 (1999); <http://papers.sif.it/?pid=ncb5101>
arXiv:gr-qc/9504050
- 48 “Stable 3-level leapfrog integration in numerical relativity”, Kimberly C. B. New, Keith Watt, Charles W. Misner, and Joan M. Centrella, *Physical Review D* **58**, 064022 (1998)
<http://prola.aps.org/abstract/PRD/v58/i6/e064022>
- 49 “Relativistic Scalar Gravity: A Laboratory for Numerical Relativity”, Keith Watt and Charles W. Misner, arXiv:gr-qc/9910032
- 50 “Spherical Harmonic Decomposition on a Cubic Grid”, Charles W. Misner, *Class. Quant. Grav.* **21** (2004) S243–S247;
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- 51 “Gravitational wave detectors based on matter wave interferometers (MIGO) are no better than laser interferometers (LIGO)”, A. Roura, D. R. Brill, B. L. Hu, C. W. Misner, and W. D. Phillips, *Physical Review D* **73**, 084018 (2006);
<http://link.aps.org/doi/10.1103/PhysRevD.73.084018>

- 52 “Excising das All: Evolving Maxwell waves beyond scri”, C. W. Misner, J. R. van Meter, and D. R. Fiske, *Physical Review D* **74**, 064003 (2006);
<http://link.aps.org/doi/10.1103/PhysRevD.74.064003>

Articles from Books/Conferences

- 1^B “Remarks on Unquantized General Relativity”, Charles W. Misner in *Conference on the Role of Gravitation in Physics*, Chapel Hill Conference 1957, (Wright Air Development Center Technical Report 57-216, ASTIA Document No. AD 118180, 1957) pp 18–29, 134.
- 2=2^B “Classical Physics as Geometry”, C. W. Misner and J. A. Wheeler in *Geometrodynamics*, ed. J. A. Wheeler (Academic Press, N.Y. 1962), [reprinted from *Annals of Physics* **2**, 525–603 (1957)].
- 3^B “Further Results in Topological Relativity”, David Finkelstein and Charles W. Misner in *Les Théories Relativistes de la Gravitation*, Royaumont Conference 1959, (Centre National de la Recherche Scientifique, Paris 1962).
- 4^B “The Dynamics of General Relativity”, R. Arnowitt, S. Deser, and C. W. Misner, Chapter 7 in *Gravitation: An Introduction to Current Research*, L. Witten, ed., (J. Wiley, New York 1962) pp 227–265. Reprinted as <http://arxiv.org/pdf/gr-qc/0405109>.
- 5^B “Canonical Analysis of General Relativity”, R. Arnowitt, S. Deser, and C. W. Misner in *Recent Developments in General Relativity* dedicated to Leopold Infeld (Pergamon Press, New York 1962) pp 127–136.
- 6^B “Mass as a Form of Vacuum”, C. W. Misner in *The Concept of Matter*, Ernan McMullin, ed., (University of Notre Dame Press 1963), pp 596–608.
- 7^B “Waves, Newtonian Fields, and Coordinate Functions”, C. W. Misner (reporting work done in collaboration with R. A. Arnowitt and S. Deser) in *Proceedings on Theory of Gravitation*, Conference in Warszawa and Jabłonna, 24–31 July 1962, (PWN-Warsaw, and Gauthier-Villars, Paris 1964), pp 189–205.

- 7.5^B “Infinite Red-Shifts in General Relativity”, C. W. Misner in *The Nature of Time*, T. Gold, ed., (Cornell University Press, Ithaca 1967), pp 75–89.
- 8^B “Differential Geometry and Differential Topology”, C. W. Misner in *Relativity Groups and Topology, Les Houches 1963*, C. DeWitt and B. DeWitt, eds., (Gordon and Breach, New York 1964) pp 881–929.
- 9^B “Taub-Nut Space as a Counterexample to Almost Anything”, C. W. Misner in *Relativity Theory and Astrophysics 1*, Lectures in Applied Mathematics, Vol. 8, edited by J. Ehlers, (American Mathematical Society, Providence, R.I. 1967), pp 160–169.
- 10^B “Observer-time as a Coordinate in Relativistic Spherical Hydrodynamics”, C. W. Misner in *Relativity Theory and Astrophysics 3*, Lectures in Applied Mathematics, Vol. 10, edited by J. Ehlers, American Mathematical Society, Providence R.I. 1967), pp 117–128.
- 11^B “Relativistic Fluids in Cosmology”, C. W. Misner in *Fluids et champ gravitationnel en relativité générale*, Colloques international du CNRS No. 170 (Éditions du Centre National de la recherche scientifique, Paris 1969) pp 155–157.
- 11^{B'} “Relativistic Fluids in Cosmology”, C. W. Misner in DeWitt and Wheeler, eds., *Battelle Recontres 1967*, (Benjamin, N.Y.), pp 117–120, reprinted from CNRS conference.
- 12^B “Gravitational Collapse”, C. W. Misner in *Astrophysics and General Relativity, 1968 Brandeis Summer Institute*, edited by M. Chretien, S. Deser, and J. Goldstein (Gordon and Breach, New York 1969), Vol. 1, pp 113–215.
- 13^B “The Equations of Relativistic Spherical Hydrodynamics”, Charles W. Misner and David H. Sharp in *Quasars and High-Energy Astronomy*, ed. K. N. Douglas, et. al. (Gordon and Breach, New York 1969) pp 393–395.
- 14^B “Energy Transport by Radiative Diffusion in Relativistic Spherical Hydrodynamics”, Charles W. Misner and David H. Sharp in

Quasars and High-Energy Astronomy, ed. K. N. Douglas et. al. (Gordon and Breach, New York 1969) pp 397–400.

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- 16^B “Classical and Quantum Dynamics of a Closed Universe”, C. W. Misner in Carmeli, Fickler, and Witten, editors, *Relativity* (Plenum Pub. Co., San Francisco 1970), pp 55–79.
- 17^B “Minisuperspace”, C. W. Misner in J. Klauder, ed., *Magic Without Magic—J. A. Wheeler 60th Anniversary Volume* (W. H. Freeman and Co., San Francisco 1972) pp 441–473.
- 18^B “Conservation Laws and the Boundary of a Boundary”, Charles W. Misner and John A. Wheeler in V. P. Shelest, ed., *Gravitatsiya: Problem i Perspektivi: pamyati, Alekseya Zinovievicha Petrova posvashaetsys* (Naukova Dumka, Kiev 1972) pp 338–351.
- 19^B “Some Topics for Philosophical Inquiry Concerning the Theories of Mathematical Geometrodynamics and of Physical Geometrodynamics”, Charles W. Misner in *PSA 1972: Proceedings of the 1972 Biennial Meeting of the Philosophy of Science Association*, Kenneth F. Schaffner and Robert S. Cohen, eds. (D. Reidel Pub. Co., Dordrecht 1974), pp 7–29.
- 20^B “Radiation from Highly Relativistic Geodesics”, C. W. Misner in the proceedings of Colloque International C.N.R.S. No. 220 (held at Institute Henri Poincaré, Paris, June 1973): *Ondes et Radiations Gravitationnelles* (CNRS, Paris 1974), pp 145–160.
- 21^B “Mechanisms for the Emission and Absorption of Gravitational Radiation”, C. W. Misner in the Proceedings of IAU Symposium No. 64 (held September 1973 in Warsaw, Poland): *Gravitational Radiation and Collapse*, C. DeWitt-Morette, ed., (Reidel, Dordrecht 1974), pp 3–15.
- 22^B “Quantum Descriptions of Singularities Leading to Pair Creation”, C. W. Misner in the Proceedings of I.A.U. Symposium No. 64 held September 1973 in Cracow, Poland: *Confrontation of*

Cosmological Theories with Observational Data, M. S. Longair, ed., (Reidel, Dordrecht 1974), pp 319–327.

- 23^B “Cosmology and Theology”, Charles W. Misner in *Cosmology, History, and Theology*, Wolfgang Yourgrau and Allen D. Breck, eds. (Plenum Press, New York 1977) pp 75–100; proceeding of the Third International Colloquium, University of Denver, November 1974.
- 24^B “Values and Arguments in Homogeneous Spaces”, Charles W. Misner in *Essays in General Relativity*, Frank J. Tipler, ed. (Academic Press, New York 1980), pp 221–231; A. H. Taub Conference at Berkeley, August 1978.
- 25^B “Symmetry Paradoxes and Other Cosmological Comments”, Charles W. Misner in *Some Strangeness in the Proportion—A Centennial Symposium to Celebrate the Achievements of Albert Einstein*, H. Woolf, ed. (Addison-Wesley Pub. Co., Reading, Pa. 1980) pp 405–415; Einstein Centennial Celebration, Institute for Advanced Study, Princeton, New Jersey, March 1979.
- 26^B “The Immaterial Constituents of Physical Objects”, Charles W. Misner in *The Impact of Modern Scientific Ideas on Society*, C. M. Kinnon, A. N. Kholodilin and J.G. Richardson, eds. (D. Reidel Pub. Co., Dordrecht 1981) pp 129–135; UNESCO Conference/Einstein Centennial, Munich and Ulm, September 1978.
- 26^{B'} “Niematerialne Składowe Obiektów Fizycznych”, Charles W. Misner in *Filozofować w Kontekście Nauki*, M. Heller, A. Michalik, and J. Życiński, eds. (Polskie Towarzystwo Teologiczne, Kraków 1987) pp 164–169; translated from UNESCO Conference, Munich and Ulm, September 1978 by M. Głódź.
- 27^B “Infinity in Physics and Cosmology”, Charles W. Misner in *Infinity*, D. O. Dahlstrom, D. T. Ozar, and L. Sweeney, eds. (Proceedings of the American Catholic Philosophical Association, Vol. 55, Washington D. C. 1981) pp 59–72; 55th Annual Meeting ACPA, St. Louis, Missouri, April 1981.
- 28^B “Non-linear Model Field Theories”, Charles W. Misner in *Spacetime and Geometry: The Alfred Schild Lectures*, Lawrence C. Shepley

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- 29^B “Spreadsheets in Research and Instruction”, C. W. Misner in E. F. Redish and J. S. Risley, editors, *Proceedings of the Conference on Computers in Physics Instruction*, (Addison-Wesley Pub. Co., Reading, Mass., 1990) pp 382–398.
- 30^B “Quality of Physics Teaching Through Building Models and Advancing Research Skills”, C. W. Misner, invited talk, in *Proceedings of the International Symposium on the Evaluation of Physics Education—Criteria, Methods and Implications*, (25–29 June 1990) M. Ahtee, V. Meisalo, H. Saarikko eds., (Dept. of Teacher Education, Univ. of Helsinki, 1991) pp 3–8.
- 31^B “Dieter R. Brill: A Spacetime Perspective”, J. Isenberg, T. Jacobson, C. Misner, and H. Pfister in *Directions in General Relativity: Volume 2, Papers in honor of Dieter Brill*, B. L. Hu and T. A. Jacobson, eds., (Cambridge University Press 1993), pp. 1–12.
- 32^B “The Mixmaster Cosmological Metrics”, C. W. Misner in *Deterministic Chaos in General Relativity*, D. Hobill, A. Burd, and A. Coley, eds., (Plenum Press 1994), NATO ASI Series B vol. 332, pp. 317–328. (gr-qc/9405068)
- 33^B “Variational Principle for Lagrangian Hydrodynamics”, C. W. Misner in *Proceedings of the Second International A. D. Sakharov Conference of Physics 1996*, I. M. Dremin and A. M. Semikhatov, eds., (World Scientific Pub. Co. 1997: ISBN 981-02-2861-9), pp. 288–293.
- 34^B “ADM Revisited for Binary Neutron Stars”, Charles W. Misner and Keith Watt in *Relativity, Particle Physics and Cosmology*, Roland E. Allen, ed., (World Scientific Pub. Co. 1999: ISBN 981-02-3794-4), pp. 13–22.
- 35^B “Hyperboloidal Slices and Artificial Cosmology for Numerical Relativity”, Charles W. Misner, pp.180–192 in *DeserFest: A Celebration of the Life and Works of Stanley Deser*, James T. Liu et al., eds., World Scientific Pub. Co., 2006), ISBN 981-256-082-3; <http://arxiv.org/abs/gr-qc/0409073>