

history and will be of value to historians interested in the sociology and the century-long development of radio technology. Some sections, though, require a good understanding of partial differential equations, electromagnetism, and magneto-ionic theory. Those discussions that are treated in great depth and quantitative detail will be appreciated more by scientists working in atmospheric and ionospheric physics, but may be distracting to those more interested in the historical aspects of radio communication and broadcasting.

Kenneth Kellermann

*National Radio Astronomy Observatory
Charlottesville, Virginia*

new books

history and philosophy

Madame Wu Chien-Shiung: The First Lady of Physics Research. C. Tsai-Chien. World Scientific, 2014. \$48.00 *paper* (264 pp.). ISBN 978-981-4368-92-6

The Perfect Theory: A Century of Geniuses and the Battle over General Relativity. P. G. Ferreira. Houghton Mifflin Harcourt, 2014. \$28.00 (288 pp.). ISBN 978-0-547-55489-1

Portrait of Gunnar Källén: A Physics Shooting Star and Poet of Early Quantum Field Theory. C. Jarlskog, ed. Springer, 2014. \$99.00 (630 pp.). ISBN 978-3-319-00626-0

Stratonauts: Pioneers Venturing into the Stratosphere. M. von Ehrenfried. Springer, 2014. \$34.99 *paper* (236 pp.). ISBN 978-3-319-02900-9

instrumentation and techniques

Beam Dynamics in High Energy Particle Accelerators. A. Wolski. Imperial College Press, 2014. \$148.00 (591 pp.). ISBN 978-1-78326-277-9

Cone Beam CT and 3D Imaging: A Practical Guide. P. Caruso, E. Silvestri, L. M. Sconfienza, eds. Springer, 2014. \$139.00 *paper* (153 pp.). ISBN 978-88-470-5318-2

Ellipsometry of Functional Organic Surfaces and Films. K. Hinrichs, K.-J. Eichhorn, eds. Springer, 2014. \$179.00 (363 pp.). ISBN 978-3-642-40127-5

Fundamentals of Fluorescence Microscopy: Exploring Life with Light. P. P. Mondal, A. Diaspro. Springer, 2014. \$69.99 (218 pp.). ISBN 978-94-007-7544-2

Good Practice in Archaeological Diagnostics: Non-invasive Survey of Complex Archaeological Sites. C. Corsi, B. Slapšak, F. Vermeulen, eds. Springer, 2013. \$179.00 (347 pp.). ISBN 978-3-319-01783-9

In Memory of Akira Tonomura: Physicist and Electron Microscopist. K. Fujikawa, Y. A. Ono, eds. World Scientific, 2014. \$68.00 *paper* (313 pp.). ISBN 978-981-4472-89-0, DVD-ROM

Local Electrode Atom Probe Tomography: A User's Guide. D. J. Larson et al. Springer, 2013. \$129.00 (318 pp.). ISBN 978-1-4614-8720-3

Quantitative Remote Sensing in Thermal Infrared: Theory and Applications. H. Tang, Z.-L. Li. Springer, 2014. \$179.00 (281 pp.). ISBN 978-3-642-42026-9

Reviews of Accelerator Science and Technology. Vol. 6: Accelerators for High Intensity Beams. A. W. Chao, W. Chou, eds. World Scientific, 2013. \$148.00 (311 pp.). ISBN 978-981-4583-24-4

Semiconductor X-Ray Detectors. B. G. Lowe, R. A. Sareen. CRC Press/Taylor & Francis, 2014. \$169.95 (585 pp.). ISBN 978-1-4665-5400-9

materials science

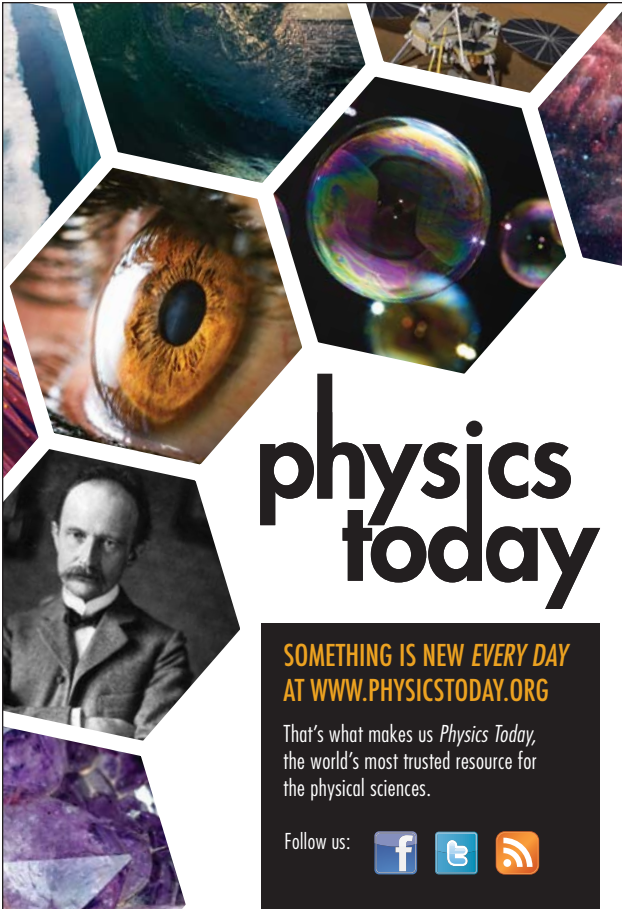
Applications of Graphene: An Overview. E. L. Wolf. Springer, 2014. \$54.99 *paper* (84 pp.). ISBN 978-3-319-03945-9

Current Trends of Surface Science and Catalysis. J. Y. Park, ed. Springer, 2014. \$179.00 (262 pp.). ISBN 978-1-4614-8741-8

Extreme Physics: Properties and Behavior of Matter at Extreme Conditions. J. Colvin, J. Larsen. Cambridge U. Press, 2014. \$99.00 (405 pp.). ISBN 978-1-107-01967-6

FIB Nanostructures. Z. M. Wang, ed. Springer, 2013. \$229.00 (530 pp.). ISBN 978-3-319-02873-6

Subsecond Annealing of Advanced Materials: Annealing by Lasers, Flash Lamps



physics today

**SOMETHING IS NEW EVERY DAY
AT WWW.PHYSICSTODAY.ORG**

That's what makes us *Physics Today*,
the world's most trusted resource for
the physical sciences.

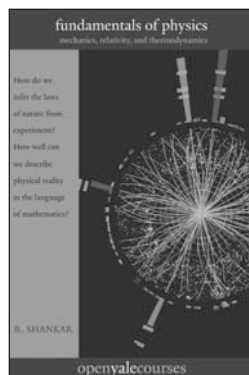
Follow us:   

yalebooks

Fundamentals of Physics

*Mechanics, Relativity, and
Thermodynamics*

R. Shankar



An ideal, calculus-based introduction to mechanics, relativity, and thermodynamics for college-level students, motivated AP Physics students, and general readers.

"This introductory text makes easy reading, due to Shankar's great sense of humor and his lucid explanation of the essential ideas of fundamental physics."—David Gross, Nobel Laureate in Physics, 2004

The Open Yale Courses Series

464 pages, 116 b/w illustrations
Paperback \$25.00



Yale University Press
YaleBooks.com

and Swift Heavy Ions. W. Skorupa, H. Schmidt, eds. Springer, 2014. \$109.00 (321 pp.). ISBN 978-3-319-03130-9

Tribology for Scientists and Engineers: From Basics to Advanced Concepts. P. L. Menezes et al., eds. Springer, 2013. \$279.00 (948 pp.). ISBN 978-1-4614-1944-0

miscellaneous

Frontiers of Fundamental Physics and Physics Education Research. B. G. Sidharth, M. Michelini, L. Santi, eds. Springer, 2014. \$139.00 (615 pp.). ISBN 978-3-319-00296-5

Physics and Our World: Reissue of the Proceedings of a Symposium in Honor of Victor F Weisskopf. K. Huang, ed. World Scientific, 2014. \$68.00 (171 pp.). ISBN 978-981-4434-96-6

nonlinear science and chaos

Chaos: Poincaré Seminar 2010. B. Duplantier, S. Nonnenmacher, V. Rivasseau, eds. Birkhäuser, 2013. \$109.00 (270 pp.). ISBN 978-3-0348-0696-1

Chaotic Signal Processing. H. Leung, ed. SIAM, 2014. \$79.00 *paper* (179 pp.). ISBN 978-1-611973-25-9

Combined Parametric-Nonparametric Identification of Block-Oriented Systems. G. Mzyk. Springer, 2014. \$109.00 *paper* (238 pp.). ISBN 978-3-319-03595-6

Discontinuity and Complexity in Nonlinear Physical Systems. J. A. T. Machado, D. Baleanu, A. C. J. Luo, eds. Springer, 2014. \$129.00 (433 pp.). ISBN 978-3-319-01410-4

Fault Detection and Diagnosis in Nonlinear Systems: A Differential and Algebraic Viewpoint. R. Martinez-Guerra, J. L. Mata-Machuca. Springer, 2014. \$129.00 (128 pp.). ISBN 978-3-319-03046-3

Guided Self-Organization: Inception. M. Prokopenko, ed. Springer, 2014. \$179.00 (475 pp.). ISBN 978-3-319-53733-2

International Conference on Theory and Application in Nonlinear Dynamics (ICAND 2012). V. In, A. Palacios, P. Longhini, eds. Springer, 2014. \$179.00 (341 pp.). ISBN 978-3-319-02924-5

Nonlinear Analysis of Gas-Water/Oil-Water Two-Phase Flow in Complex Networks. Z.-K. Gao, N.-D. Jin, W.-X. Wang. Springer, 2014. \$49.95 *paper* (103 pp.). ISBN 978-3-642-38372-4

Understanding Complex Urban Systems: Multidisciplinary Approaches to Modeling. C. Walloth, J. M. Gurr, J. A. Schmidt, eds. Springer, 2014. \$129.00 (158 pp.). ISBN 978-3-319-02995-5

nuclear physics

The Euroschool on Exotic Beams, Vol. IV. C. Scheidenberger, M. Pfützner, eds. Springer, 2014. \$89.99 *paper* (350 pp.). ISBN 978-3-642-45140-9

optics and photonics

Dressed Photons: Concepts of Light-Matter

Fusion Technology. M. Ohtsu. Springer, 2014. \$179.00 (324 pp.). ISBN 978-3-642-39568-0

Ferroelectric Crystals for Photonic Applications: Including Nanoscale Fabrication and Characterization Techniques. 2nd ed. P. Ferraro, S. Grilli, P. De Natale, eds. Springer, 2014. \$179.00 (493 pp.). ISBN 978-3-642-41085-7

Fundamentals of Fiber Lasers and Fiber Amplifiers. V. Ter-Mikirtychev. Springer, 2014. \$129.00 (253 pp.). ISBN 978-3-319-02337-3

Laser-Induced Breakdown Spectroscopy: Theory and Applications. S. Musazzi, U. Perini, eds. Springer, 2014. \$179.00 (565 pp.). ISBN 978-3-642-45084-6

Nanophotonic Information Physics: Nanointelligence and Nanophotonic Computing. M. Naruse, ed. Springer, 2014. \$129.00 (250 pp.). ISBN 978-3-642-40223-4

particle physics

Analysis of the Electric Dipole Moment in the R-parity Violating Supersymmetric Standard Model. N. Yamanaka. Springer, 2014. \$129.00 (219 pp.). ISBN 978-4-431-54543-9

CPT and Lorentz Symmetry. V. A. Kostelecký, ed. World Scientific, 2014. \$115.00 (278 pp.). ISBN 978-981-4566-42-1

Elementary Particles and Emergent Phase Space. P. Żenczykowski. World Scientific, 2014. \$98.00 (219 pp.). ISBN 978-981-4525-68-8

Heavy Neutral Particle Decays to Tau Pairs: Detected with CMS in Proton Collisions at $\sqrt{s} = 7$ TeV. M. Bachtis. Springer, 2014. \$129.00 (152 pp.). ISBN 978-3-319-03256-6

Nambu: A Foreteller of Modern Physics. T. Eguchi, M. Y. Han, eds. World Scientific, 2014. \$35.00 *paper* (196 pp.). ISBN 978-981-4583-05-3

Strong Coupling Gauge Theories in the LHC Perspective (SCGT12). Y. Aoki, T. Maskawa, K. Yamawaki, eds. World Scientific, 2014. \$165.00 (482 pp.). ISBN 978-981-4566-24-7

Symmetry and Fundamental Physics: Tom Kibble at 80. J. Gauntlett, ed. World Scientific, 2014. \$28.00 *paper* (151 pp.). ISBN 978-981-4583-85-5

plasmas and fusion

Inertial Electrostatic Confinement (IEC) Fusion: Fundamentals and Applications. G. H. Miley, S. K. Murali. Springer, 2014. \$129.00 (400 pp.). ISBN 978-1-4614-9337-2

Kinetics of Complex Plasmas. M. S. Sodha. Springer, 2014. \$179.00 (298 pp.). ISBN 978-81-322-1819-7

Mathematical Models and Methods for Plasma Physics, Volume 1: Fluid Models. R. Sentis. Birkhäuser, 2014. \$109.00 (238 pp.). ISBN 978-3-319-03803-2

popularizations

Essays on the Frontiers of Modern Astrophysics and Cosmology. S. Mathew.

Springer, 2014. \$34.99 *paper* (206 pp.). ISBN 978-3-319-01886-7

Everyday Calculus: Discovering the Hidden Math All Around Us. O. E. Fernandez. Princeton U. Press, 2014. \$24.95 (150 pp.). ISBN 978-0-691-15755-9

From Photons to Higgs: A Story of Light. 2nd ed. M.-Y. Han. World Scientific, 2014. \$28.00 *paper* (127 pp.). ISBN 978-981-4583-86-2

How Big Is Big and How Small Is Small: The Sizes of Everything and Why. T. P. Smith. Oxford U. Press, 2013. \$39.95 (256 pp.). ISBN 978-0-19-968119-8

Math Bytes: Google Bombs, Chocolate-Covered Pi, and Other Cool Bits in Computing. T. P. Chartier. Princeton U. Press, 2014. \$24.95 (136 pp.). ISBN 978-0-691-16060-3

Microcosmos: The World of Elementary Particles; Fictional Discussions Between Einstein, Newton, and Gell-Mann. H. Fritzsch. World Scientific, 2014. \$28.00 (117 pp.). ISBN 978-981-4449-98-4

Radical Abundance: How a Revolution in Nanotechnology Will Change Civilization. K. E. Drexler. Public Affairs, 2013. \$28.99 (340 pp.). ISBN 978-1-61039-113-9

The Universal Force: Gravity—Creator of Worlds. L. A. Girifalco. Oxford U. Press, 2014. \$29.95 *paper* (297 pp.). ISBN 978-0-19-964213-7

Wizards, Aliens, and Starships: Physics and Math in Fantasy and Science Fiction. C. L. Adler. Princeton U. Press, 2014. \$29.95 (378 pp.). ISBN 978-0-691-14715-4

quantum physics

Back-of-the-Envelope Quantum Mechanics: With Extensions to Many-Body Systems and Integrable PDEs. M. Olshanii. World Scientific, 2014. \$38.00 (149 pp.). ISBN 978-981-4508-46-9

Dynamics of Complex Quantum Systems. 2nd ed. V. M. Akulin. Springer, 2014. \$149.00 (677 pp.). ISBN 978-94-007-7204-5

Formulation of Uncertainty Relation Between Error and Disturbance in Quantum Measurement by Using Quantum Estimation Theory. Y. Watanabe. Springer, 2014. \$129.00 (122 pp.). ISBN 978-4-431-54492-0

society and government

Consider a Spherical Patent: IP and Patenting in Technology Business. J. E. Gortych. CRC Press/Taylor & Francis, 2014. \$59.95 *paper* (245 pp.). ISBN 978-1-4398-8805-6

Physics of Societal Issues: Calculations on National Security, Environment, and Energy. 2nd ed. D. Hafemeister. Springer, 2014. \$59.99 (668 pp.). ISBN 978-1-4614-9271-9

space and planetary science

Catalogue of Meteorites from South America. R. D. Acevedo, M. C. L. Rocca, V. M. García. Springer, 2014. \$54.99 *paper* (147 pp.). ISBN 978-3-319-01924-6 ■