

one must wonder about the authors' stated objective. Examples of this disparity are rampant in chapter 2, where equations are presented without derivation, origin, or even definitions of some terms. I can understand that the book, as an entry-level text, needs to be concise, but some key concepts are lost in the interest of brevity.

One could argue that the authors' approach will inspire students to pursue more rigorous texts. Indeed, the breadth of topics covered in this volume is welcome, but the bibliography and chapter references fall a bit short in guiding students to the classic texts. As a result, the authors miss an opportunity to have their introductory textbook be among the standards. The writing style throughout the book is also a bit choppy, with a number of grammatical errors. According to the overleaf, the text is translated from Spanish; in my opinion, the translation has room for improvement.

An Introduction to Materials Science will serve well as supplemental reading for an introductory or advanced materials-science course. It might not make a good primary text without significant supplementation. Faculty from non-materials-science departments who teach more traditional courses—for example, inorganic chemistry—may find this book particularly useful for optical and magnetic materials, and for electrical and thermal properties. I would compare it with *The Physics and Chemistry of Materials* (Wiley, 2001) by Joel I. Gersten and Frederick W. Smith, which is a significantly more comprehensive and advanced text (see the book review in PHYSICS TODAY, July 2002, page 59). The objectives of Gersten and Smith are different from those of González-Viñas and Mancini, but I believe the two books somewhat complement one another. Any shortcomings in depth or derivations in *An Introduction to Materials Science* could be offset by refer-

ences to Gersten and Smith's book. Concomitantly, the brevity of González-Viñas and Mancini's book may help students sort through *The Physics and Chemistry of Materials*.

In summary, *An Introduction to Materials Science* is a useful addition to the texts in the field. Its broad range of topics and brevity of coverage are both assets and, in some cases, liabilities. With that said, the book should not be overlooked; its contribution to a materials-science course or its ability to motivate individual study is likely to be significant.

Christopher L. Cahill
George Washington University
Washington, DC

New Books

Cosmology and Relativity

Phi in the Sky: The Quest for Cosmological Scalar Fields. C. J. A. P. Martins et al., eds. *AIP Conference Proceedings* 736. Proc. wksp., Porto, Portugal, July 2004. AIP, Melville, NY, 2004. \$127.00 (204 pp.). ISBN 0-7354-0218-3

Device Physics

Modern Microwave Circuits. N. Kinayman, M. I. Aksun. Artech House, Norwood, MA, 2005. \$131.00 (604 pp.). ISBN 1-58053-725-1, CD-ROM

Optoelectronic Devices: Advanced Simulation and Analysis. J. Piprek, ed. Springer-Verlag, New York, 2005. \$249.00 (452 pp.). ISBN 0-387-22659-1

Thermophotovoltaic Generation of Electricity. A. Gopinath, T. J. Coutts, J. Luther, eds. *AIP Conference Proceedings* 738. Proc. conf., Freiburg, Germany, June 2004. AIP, Melville, NY, 2004. \$168.00 (491 pp.). ISBN 0-7354-0222-1

Energy and Environment

Annual Review of Environment and Resources. Vol. 29. P. A. Matson, A. Gadgil, D. M. Kammen, eds. Annual Reviews, Palo Alto, CA, 2004. \$89.00 (509 pp.). ISBN 0-8243-2329-7

The Bottomless Well: The Twilight of Fuel, the Virtue of Waste, and Why We Will Never Run Out of Energy. P. W. Huber, M. P. Mills. Basic Books, New York, 2005. \$26.00 (214 pp.). ISBN 0-465-03116-1

Essentials of Medical Geology: Impacts of the Natural Environment on Public Health. O. Selinus et al., eds. Academic Press/Elsevier, Burlington, MA, 2005. \$99.95 (812 pp.). ISBN 0-12-636341-2

The Rebirth of Cold Fusion: Real Science, Real Hope, Real Energy. S. B. Krivit, N. Winocur. Pacific Oaks Press, Los Angeles, 2004. \$25.95 paper (298 pp.). ISBN 0-9760545-8-2

Scientists Debate Gaia: The Next Century. S. H. Schneider, J. R. Miller, E. Crist, P. J. Boston, eds. MIT Press, Cambridge, MA, 2004. \$50.00 (377 pp.). ISBN 0-262-19498-8

Fluids

Handbook of Mathematical Fluid Dynamics. Vol. 3. S. Friedlander, D. Serre, eds. Elsevier, San Diego, CA, 2004. \$175.00 (674 pp.). ISBN 0-444-51556-9

Geophysics

The Interaction of Ocean Waves and Wind. P. Janssen. Cambridge U. Press, New York, 2004. \$120.00 (300 pp.). ISBN 0-521-46540-0

Multiscale Processes in the Earth's Magnetosphere: From Interball to Cluster. J.-A. Sauvaud, Z. Němec, eds. *NATO Science Series 2: Mathematics, Physics and Chemistry* 178. Kluwer Academic, Norwell, MA, 2004. \$179.00 (328 pp.). ISBN 1-4020-2766-4, CD-ROM

History and Philosophy

Annus Mirabilis: 1905, Albert Einstein, and the Theory of Relativity. J. Gribbin, M. Gribbin. Chamberlain Bros., New York, 2005. \$25.95 (310 pp.). ISBN 1-59609-144-4, DVD

The Book Nobody Read: Chasing the Revolutions of Nicolaus Copernicus. O. Gingerich. Penguin Books, New York, 2005 [2004, reissued]. \$15.00 paper (306 pp.). ISBN 0-14-30-3476-6



Piezo • Nano • Positioning

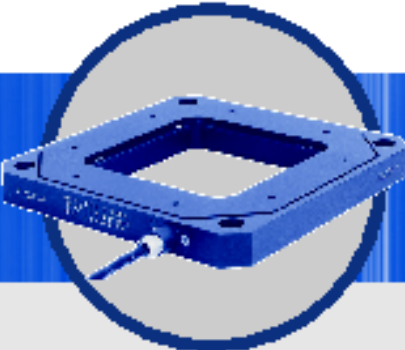
1 to 8-Axis Flexure-Guided Piezo Stages for

Imaging / High-Speed Nano-Positioning

■ ISO 9001 ■ 30+ Years Experience ■ Global Support ■ 400 p. Catalog

www.pi.ws/pspt

PI [Physik-Instrumente] L.P. Tel: [508] 932-3458



Making the NanoWorld

The Born-Einstein Letters, 1916–1955: Friendship, Politics and Physics in Uncertain Times. M. Born. Macmillan, New York, 2005 [1971, reissued]. \$26.95 (235 pp.). ISBN 1-4039-4496-2

The Calculus Gallery: Masterpieces from Newton to Lebesgue. W. Dunham. Princeton U. Press, Princeton, NJ, 2005. \$29.95 (236 pp.). ISBN 0-691-09565-5

Einstein 1905: The Standard of Greatness. J. S. Rigden. Harvard U. Press, Cambridge, MA, 2005. \$21.95 (173 pp.). ISBN 0-674-01544-4

The End of the Certain World: The Life and Science of Max Born, the Nobel Physicist Who Ignited the Quantum Revolution. N. T. Greenspan. Basic Books, New York, 2005. \$26.95 (374 pp.). ISBN 0-7382-0693-8

Establishing Research Corporation: A Case Study of Patents, Philanthropy, and Organized Research in Early Twentieth-Century America. T. D. Cornell, J. E. Turner, ed. Research Corp, Tucson, AZ, 2004. Available through university libraries in North America (328 pp.). ISBN 0-9633504-7-1

The Fly in the Cathedral: How a Group of Cambridge Scientists Won the International Race to Split the Atom. B. Cathcart. Farrar, Straus and Giroux, New York, 2005. \$25.00 (308 pp.). ISBN 0-374-15716-2

Nobel Laureates and Twentieth-Century Physics. M. Dardo. Cambridge U. Press, New York, 2004. \$110.00, \$39.99 *paper* (533 pp.). ISBN 0-521-83247-0, ISBN 0-521-54008-9 *paper*

On the Shoulders of Giants: Dialogues Concerning Two New Sciences. G. Galilei, S. Hawking, ed. Running Press, Philadelphia, 2005 [2002, reissued]. \$12.95 *paper* (230 pp.). ISBN 0-7624-2015-4

On the Shoulders of Giants: Harmonies of the World, Book Five. J. Kepler, S. Hawking, ed. Running Press, Philadelphia, 2005 [2002, reissued]. \$9.95 *paper* (92 pp.). ISBN 0-7624-2018-9

On the Shoulders of Giants: On the Revolutions of Heavenly Spheres. N. Copernicus, S. Hawking, ed. Running Press, Philadelphia, 2005 [2002, reissued]. \$14.95 *paper* (384 pp.). ISBN 0-7624-2021-9

On the Shoulders of Giants: Principia. I. Newton, S. Hawking, ed. Running Press, Philadelphia, 2005 [2002, reissued]. \$14.95 *paper* (432 pp.). ISBN 0-7624-2022-7

On the Shoulders of Giants: Selections from The Principle of Relativity. A. Einstein, S. Hawking, ed. Running Press, Philadelphia, 2005 [2002, reissued]. \$9.95 *paper* (100 pp.). ISBN 0-7624-2023-5

A Physicist's Labour in War and Peace: Memoirs 1933–1999. E. W. Kellermann. Stamford House, Peterborough, UK, 2004. \$18.00 *paper* (242 pp.). ISBN 1-904985-09-2

Sneaking a Look at God's Cards: Unraveling the Mysteries of Quantum Mechanics. Rev. ed. G. Ghirardi (translated from Italian by G. Malsbary). Princeton U. Press, Princeton, NJ, 2005 [2004]. \$35.00 (488 pp.). ISBN 0-691-12139-7

When Physics Became King. I. R. Morus. U. of Chicago Press, Chicago, 2005. \$60.00, \$25.00 *paper* (303 pp.). ISBN 0-226-54201-7, 0-226-54202-5 *paper*

The World of Gerard Mercator: The Mapmaker Who Revolutionized Geography. A. Taylor. Walker, New York, 2004. \$26.00 (291 pp.). ISBN 0-8027-1377-7

Instrumentation and Techniques

Beam Instrumentation Workshop 2004. T. Shea, R. C. Sibley III, eds. *AIP Conference Proceedings 732*. Proc. wksp., Knoxville, TN, May 2004. AIP, Melville, NY, 2004. \$150.00 (503 pp.). ISBN 0-7354-0214-0, *CD-ROM*

Ewing's Analytical Instrumentation Handbook. 3rd ed. J. Cazes, ed. Marcel Dekker, New York, 2005. \$249.95 (1037 pp.). ISBN 0-8247-5348-8

Materials Science

Handbook of Polymer Synthesis. 2nd ed. H. R. Kricheldorf, O. Nuyken, G. Swift. *Plastics Engineering 70*. Marcel Dekker, New York, 2005 [1992]. \$269.95 (965 pp.). ISBN 0-8247-5473-5

Nanophysics and Nanotechnology: An Introduction to Modern Concepts in Nanoscience. E. L. Wolf. Wiley-VCH, Weinheim, Germany, 2004. \$84.95 *paper* (174 pp.). ISBN 3-527-40407-4

Polymer Synthesis. Y. Furusho et al. *Advances in Polymer Science 171*. Springer-Verlag, New York, 2004. \$199.00 (213 pp.). ISBN 3-540-21711-8

Polymer Synthesis: Theory and Practice—Fundamentals, Methods, Experiments. 4th ed. D. Braun et al. Springer-Verlag, New York, 2005 [2001]. \$89.95 (385 pp.). ISBN 3-540-20770-8

Soft Materials: Structure and Dynamics. J. R. Dutcher, A. G. Marangoni, eds. Marcel Dekker, New York, 2005. \$175.00 (409 pp.). ISBN 0-8247-5358-5

Stress-Induced Phenomena in Metalization. P. S. Ho, S. P. Baker, T. Nakamura, C. A. Volkert, eds. *AIP Conference Proceedings 741*. Proc. wksp., Austin, TX, June 2004. AIP, Melville, NY, 2004. \$136.00 (272 pp.). ISBN 0-7354-0225-6

Transport Processes in Ion-Irradiated Polymers. D. Fink, ed. *Springer Series in Materials Science 65*. Springer-Verlag, New York, 2004. \$139.00 (335 pp.). ISBN 3-540-20943-3

Miscellaneous

Artificial Life IX: Proceedings of the Ninth International Conference on the Simulation and Synthesis of Artificial Life. J. Pollack et al., eds. Proc. conf., Boston, Sept. 2004. MIT Press,

Cambridge, MA, 2004. \$80.00 *paper* (589 pp.). ISBN 0-262-66183-7

Exploring Ancient Skies: An Encyclopedic Survey of Archaeoastronomy. D. H. Kelley, E. F. Milone. Springer-Verlag, New York, 2005. \$298.00 (612 pp.). ISBN 0-387-95310-8

Make Your Mark in Science: Creativity, Presenting, Publishing and Patents—A Guide for Young Scientists. C. Ascheron, A. Kickuth. Wiley, Hoboken, NJ, 2005. \$29.95 *paper* (235 pp.). ISBN 0-471-65733-6

The Penguin Dictionary of Biology. 11th ed. M. Thain, M. Hickman. Penguin Books, New York, 2004 [2000]. \$16.00 *paper* (753 pp.). ISBN 0-141-01396-6

A Sense of the Mysterious: Science and the Human Spirit. A. Lightman. Pantheon Books, New York, 2005. \$23.00 (211 pp.). ISBN 0-375-42320-6

Nonlinear Science and Chaos

Collective Dynamics of Nonlinear and Disordered Systems. G. Radons, W. Just, P. Häussler, eds. Springer-Verlag, New York, 2005. \$139.00 (378 pp.). ISBN 3-540-21383-X

Experimental Chaos. S. Boccaletti et al., eds. *AIP Conference Proceedings 742*. Proc. conf., Florence, Italy, June 2004. AIP, Melville, NY, 2004. \$145.00 (365 pp.). ISBN 0-7354-0226-4

Minority Games: Interacting Agents in Financial Markets. D. Challet, M. Marsili, Y.-C. Zhang. Oxford U. Press, New York, 2005. \$84.50 (344 pp.). ISBN 0-19-856640-9

Quantitative Finance for Physicists: An Introduction. A. B. Schmidt. *Academic Press Advanced Finance Series*. Academic Press/Elsevier, Burlington, MA, 2005. \$59.95 (167 pp.). ISBN 0-12-088464-X

Nuclear Physics

Nuclear Renaissance: Technologies and Policies for the Future of Nuclear Power. W. J. Nuttall. IOP, Philadelphia, 2005. \$65.00 (322 pp.). ISBN 0-7503-0936-9

Optics and Photonics

Electronic and Photoelectron Spectroscopy: Fundamentals and Case Studies. A. M. Ellis, M. Feher, T. G. Wright. Cambridge U. Press, New York, 2005. \$55.00 (286 pp.). ISBN 0-521-81737-4

Encyclopedia of Modern Optics. Vols. 1–5. R. D. Guenther, D. G. Steel, L. Bayvel, eds. Academic Press/Elsevier, Burlington, MA, 2005. \$1795.00 *set* (2415 pp. *set*). ISBN 0-12-227600-0

Fast Light, Slow Light and Left-Handed Light. P. W. Milonni. *Series in Optics and Optoelectronics*. IOP, Philadelphia, 2005. \$105.00 (247 pp.). ISBN 0-7503-0926-1

Femtosecond Optical Frequency Comb: Principle, Operation, and Applications. J. Ye, S. T. Cundiff, eds.

Springer-Verlag, New York, 2005. \$89.95 (361 pp.). ISBN 0-387-23790-9

Fluorescence Spectroscopy in Biology: Advanced Methods and Their Applications to Membranes, Proteins, DNA, and Cells. M. Hof, R. Hutterer, V. Fidler, eds. *Springer Series on Fluorescence: Methods and Applications 3*. Springer-Verlag, New York, 2005. \$129.00 (305 pp.). ISBN 3-540-22338-X

Handbook of Coherent Domain Optical Methods: Biomedical Diagnostics, Environmental and Material Science. Vols. 1 and 2. V. V. Tuchin, ed. Kluwer Academic Publishers, Norwell, MA, 2004. \$189.50 set (1003 pp. set). ISBN 1-4020-7576-6

Infrared Ellipsometry on Semiconductor Layer Structures: Phonons, Plasmons, and Polaritons. M. Schubert. *Springer Tracts in Modern Physics 209*. Springer-Verlag, New York, 2004. \$159.00 (193 pp.). ISBN 3-540-23249-4

Nonimaging Optics. R. Winston, J. C. Miñano, P. Benítez. Academic Press/Elsevier, Burlington, MA, 2005. \$89.95 (497 pp.). ISBN 0-12-759751-4

Optical Frequency-Modulated Continuous-Wave (FMCW) Interferometry. J. Zheng. *Springer Series in Optical Sciences 107*. Springer-Verlag, New York, 2005. \$139.00 (245 pp.). ISBN 0-387-23009-2

Polarization Optics in Telecommuni-

cations. J. N. Damask. *Springer Series in Optical Sciences 101*. Springer-Verlag, New York, 2005. \$159.00 (520 pp.). ISBN 0-387-22493-9

Tribute to Emil Wolf: Science and Engineering Legacy of Physical Optics. T. P. Jannson, ed. SPIE Press, Bellingham, WA, 2005. \$92.00 (510 pp.). ISBN 0-8194-5441-9

Particle Physics

Advanced Visual Quantum Mechanics. B. Thaller. Springer-Verlag, New York, 2005. \$79.95 (516 pp.). ISBN 0-387-20777-5, *CD-ROM*

Annual Review of Nuclear and Particle Science. Vol. 54. B. Kayser, B. R. Holstein, A. Jawahery, eds. Annual Reviews, Palo Alto, CA, 2004. \$84.00 (590 pp.). ISBN 0-8243-1554-5

Effective Field Theories in Flavour Physics. T. Mannel. *Springer Tracts in Modern Physics 203*. Springer-Verlag, New York, 2004. \$159.00 (175 pp.). ISBN 3-540-21931-5

50 Years of Yang-Mills Theory. G. 't Hooft, ed. World Scientific, Hackensack, NJ, 2005. \$84.00, \$34.00 paper (487 pp.). ISBN 981-238-934-2, ISBN 981-256-007-6 paper

Learning About Particles: 50 Privileged Years. J. Steinberger. Springer-Verlag, New York, 2005. \$49.95 (181 pp.). ISBN 3-540-21329-5

IX Hadron Physics and VII Relativistic Aspects of Nuclear Physics. M. E. Bracco, M. Chiapparini, E. Ferreira, T. Kodama, eds. *AIP Conference Proceedings 739*. Proc. mtg., Rio de Janeiro, Brazil, Mar.-Apr. 2004. AIP, Melville, NY, 2004. \$192.00 (736 pp.). ISBN 0-7354-0223-X

Popularizations

Astro Turf: The Private Life of Rocket Science. M. G. Lord. Walker, New York, 2005. \$24.00 (259 pp.). ISBN 0-8027-1427-7

Converging Realities: Toward a Common Philosophy of Physics and Mathematics. R. Omnès. Princeton U. Press, Princeton, NJ, 2005. \$29.95 (264 pp.). ISBN 0-691-11530-3

The Curvature of Spacetime: Newton, Einstein, and Gravitation. H. Fritzsche (translated from German by K. Heusch). Columbia U. Press, New York, 2005 [2002, reissued]. \$17.95 paper (341 pp.). ISBN 0-231-11821-X

A Different Universe: Reinventing Physics from the Bottom Down. R. B. Laughlin. Basic Books, New York, 2005. \$26.00 (254 pp.). ISBN 0-465-03828-X

Earth: An Intimate History. R. Fortey. Alfred A. Knopf, New York, 2004. \$30.00 (429 pp.). ISBN 0-375-40626-3

Evolving Cosmos. G. Schilling. Cambridge U. Press, New York, 2004. \$40.00 (135 pp.). ISBN 0-521-83325-6

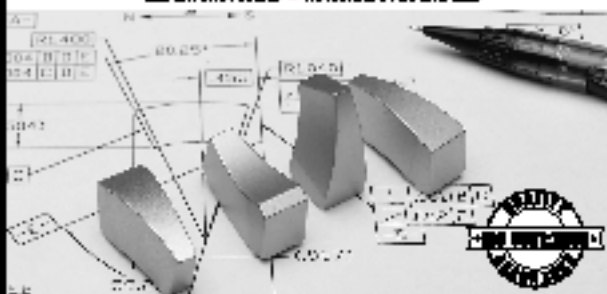
Get all the extra web content to which you're entitled.

1. Log onto www.physicstoday.org/ptreg.html
2. Provide an e-mail address
E-mail addresses are not sold to or shared with other organizations.
3. Provide your society membership # or Physics Today customer #, printed above your name on the mailing label (5-20 characters depending on your society)

*****AUTO*****5-DIGIT
123456789 PT058-10AP8 HC DOM
J.G. PHYSICIST
NANO LAB
1234 MAIN ST
ANYTOWN, ST 12345-6789

MAGNETS

COMPLETE DESIGN SOLUTIONS • INDIVIDUAL FROM DESIGN
3-DIMENSIONAL ORGANY • CRYSTALINE • ALUMINUM • NICKEL/COBALT/IRON BASED
MAGNETIC MATERIALS • MAGNETIC ASSEMBLIES



With a state of the art manufacturing facility which is certified to ISO 9001:2000 we can deliver quality magnet, assembly or sub assembly fast. MCE can also fully engineer and design a solution for your magnet requirement. Call or FAX us with your requirement for an ~~estimate~~ quotation.



MAGNETIC COMPONENT ENGINEERING, INC.
2230 Linden Blvd. • Bayside, NY 11365
Tel: (718) 339-2424
FAX: (718) 339-3100 • Email: (718) 339-3102
Email: sales@mceproducts.com • Website: www.mceproducts.com