

those areas. An extensive discussion of phase transitions and what researchers have learned through computations and simulations appears in the chapter on the smectic phase of thermotropic liquid crystals. Discotic (thermotropic liquid crystals formed by disk-shaped molecules), polymer, and lyotropic liquid crystals are covered in shorter chapters containing much less theory. Those chapters resemble what has been written in other texts on liquid crystals.

Singh's chapter on chiral liquid crystals effectively combines a discussion of the properties of chiral nematics and chiral smectics with theoretical insights. The author makes this chapter special by including a detailed description of the theory of the blue phases, an overview of theoretical work on ferroelectric phases, and a discussion on twist-grain boundary phases—topics rarely found in books on liquid crystals. In the final chapter, which covers defects and textures, Singh shares his own perspectives by tying together typical phenomena with unifying theoretical ideas.

From beginning to end, *Liquid Crystals: Fundamentals* gives readers a thorough look at a state of matter that continues to attract attention within the field of soft condensed matter physics. It emphasizes theory, offers a broad exploration of topics, and includes many recent developments. The combination makes Singh's book unique and worthy of attention.

Peter J. Collings
Swarthmore College
Swarthmore, Pennsylvania

New Books

Chemical Physics

Ultrafast Phenomena XIII. R. D. Miller, M. M. Murnane, N. F. Scherer, A. M. Weiner, eds. *Springer Series in Chemical Physics* 71. Proc. conf., Vancouver, British Columbia, Canada, May 2002. Springer-Verlag, New York, 2003. \$239.00 (699 pp.). ISBN 3-540-00089-5

Computers and Computational Physics

Computational Electromagnetics. C. Carstensen, S. Funken, W. Hackbusch, R. H. W. Hoppe, P. Monk, eds. *Lecture Notes in Computational Science and Engineering* 28. Proc. wksp., Kiel, Germany, Jan. 2001. Springer-Verlag, New York, 2003. \$79.95 (209 pp.). ISBN 3-540-44392-4

Introduction to Maple. 3rd edition. A. Heck. Springer-Verlag, New York, 2003 [1996]. \$49.95 (828 pp.). ISBN 0-387-00230-8

Numerical and Analytical Methods for Scientists and Engineers Using Mathematica. D. Dubin. Wiley, Hoboken, N.J., 2003. \$120.00 (633 pp.). ISBN 0-471-26610-8, CD-ROM

Quantum Information Processing. G. Leuchs, T. Beth, eds. Wiley-VCH, Hoboken, N.J., 2003. \$139.00 (327 pp.). ISBN 3-527-40371-X

Condensed Matter Physics

Challenges in Granular Physics. T. Halsey, A. Mehta. World Scientific, River Edge, N.J., 2002. \$64.00 (247 pp.). ISBN 981-238-239-9

Computer Simulation Studies in Condensed-Matter Physics XV. D. P. Landau, S. P. Lewis, H.-B. Schüttler, eds. *Springer Proceedings in Physics* 90. Proc. wksp., Athens, Ga., Mar. 2002. Springer-Verlag, New York, 2003. \$139.00 (219 pp.). ISBN 3-540-00087-9

Electronic and Optoelectronic Properties of Semiconductor Structures. J. Singh. Cambridge U. Press, New York, 2003. \$60.00 (532 pp.). ISBN 0-521-82379-X

Electronic Defect States in Alkali Halides: Effects of Interaction With Molecular Ions. V. Dierolf. *Springer Tracts in Modern Physics* 185. Springer-Verlag, New York, 2003. \$149.00 (196 pp.). ISBN 3-540-00471-8

Interactions in Ultracold Gases: From Atoms to Molecules. M. Weidemüller, C. Zimmermann, eds. Wiley-VCH, Hoboken, N.J., 2003. \$139.00 (509 pp.). ISBN 3-527-40389-2

Low-Dimensional Systems: Theory, Preparation, and Some Applications. L. M. Liz-Marzán, M. Giersig, eds. *NATO Science Series, Series II: Mathematics, Physics and Chemistry* 91. Proc. wksp., Puzoszykowo, Poland, May 2002. Kluwer Academic, Norwell, Mass., 2003. \$127.00 (322 pp.). ISBN 1-4020-1168-7

Particle Scattering, X-Ray Diffraction, and Microstructure of Solids and Liquids. M. Ristig, K. Gernoth, eds. *Lecture Notes in Physics* 610. Springer-Verlag, New York, 2003. \$59.95 (196 pp.). ISBN 3-540-44386-X

Spectroscopy and Dynamics of Orientationally Structured Adsorbates. V. M. Rozenbaum, S. H. Lin. *World Scientific Lecture and Course Notes in Chemistry* 7. World Scientific, River Edge, N.J., 2002. \$48.00 (200 pp.). ISBN 981-238-175-9

Spin Dependent Transport in Magnetic Nanostructures. S. Maekawa, T. Shinjo, eds. *Advances in Condensed Matter Science* 3. Taylor & Francis, New York, 2002. \$96.00 (282 pp.). ISBN 0-415-27226-2

Transverse Patterns in Nonlinear Optical Resonators. K. Staliunas, V. J. Sánchez-Morcillo. *Springer Tracts in Modern Physics* 183. Springer-Verlag, New York, 2003. \$159.00 (226 pp.). ISBN 3-540-00434-3

Cosmology and Relativity

The Emergence of Cosmic Structure. S. S. Holt, C. S. Reynolds, eds. *AIP Conference Proceedings* 666. Proc. conf., College Park, Md., Oct. 2002. AIP, Melville, N.Y., 2003. \$150.00 (380 pp.). ISBN 0-7354-0128-4

The Scalar-Tensor Theory of Gravitation. Y. Fujii, K. Maeda. *Cambridge Monographs on Mathematical Physics*. Cambridge U. Press, New York, 2003. \$75.00 (240 pp.). ISBN 0-521-81159-7

Device Physics

High-Resolution Electron Microscopy. 3rd edition. J. C. H. Spence. *Monographs on the Physics and Chemistry of Materials* 60. Oxford U. Press, New York, 2003 [1988]. \$36.50 (401 pp.). ISBN 0-19-850915-4

Nanoelectronics and Information Technology: Advanced Electronic Materials and Novel Devices. R. Waser, ed. Wiley-VCH, Hoboken, N.J., 2003. \$74.90 (1001 pp.). ISBN 3-527-40363-9

Thin-Film Crystalline Silicon Solar Cells: Physics and Technology. R. Brendel. Wiley-VCH, Hoboken, N.J., 2003. \$99.00 (287 pp.). ISBN 3-527-40376-0

Vacuum Technology: Calculations in Chemistry. D. J. Hucknall, A. Morris. Royal Society of Chemistry, Cambridge, England, 2003. \$89.95 paper (233 pp.). ISBN 0-85404-651-8

Fluids

Handbook of Mathematical Fluid Dynamics. Vol. 2. S. Friedlander, D. Serre, eds. North-Holland/Elsevier, Amsterdam, 2003. \$135.00 (614 pp.). ISBN 0-444-51287-X

Mathematical Models of Fluid Dynamics: Modelling, Theory, Basic Numerical Facts—An Introduction. R. Ansorge. Wiley-VCH, Hoboken, N.J., 2003. \$89.00 (187 pp.). ISBN 3-527-40397-3

Geophysics

Seismic Motion, Lithospheric Structures, Earthquake and Volcanic Sources: The Keiiti Aki Volume. Y. Ben-Zion, ed. *Pageoph Topical Volumes*. Birkhäuser, Boston, 2003. \$69.95 paper (376 pp.). ISBN 3-7643-7011-4

Thermo-Hydro-Mechanical Coupling in Fractured Rock. H.-J. Kumpel, ed. *Pageoph Topical Volumes*. Birkhäuser, Boston, 2003. \$59.95 paper (360 pp.). ISBN 3-7643-0253-4

History and Philosophy

Abel's Proof: An Essay on the Sources and Meaning of Mathematical Unsolvability. P. Pesic. MIT Press, Cambridge, Mass., 2003. \$24.95 (213 pp.). ISBN 0-262-16216-4

Caroline Herschel's Autobiographies. M. Hoskin, ed. Science History, Cambridge, England, 2003. \$40.00 (147 pp.). ISBN 0-905193-06-7

Einstein. P. D. Smith. Haus, London, 2003. \$12.99, \$8.99 paper (170 pp.). ISBN 1-904341-14-4, ISBN 1-904341-15-2 paper

Einstein: The Passions of a Scientist. B. Parker. Prometheus Books, Amherst, N.Y., 2003. \$28.00 (297 pp.). ISBN 1-59102-063-8

Einstein's Luck: The Truth Behind Some of the Greatest Scientific Discov-

eries. J. Waller. Oxford U. Press, New York, 2002. \$30.00 (308 pp.). ISBN 0-19-860719-9

Europe's Space Programme: To Ariane and Beyond. B. Harvey. *Springer-Praxis Books in Astronomy and Space Sciences*. Praxis/Springer-Verlag, New York, 2003. \$39.95 paper (382 pp.). ISBN 1-85233-722-2

Facing Up: Science and Its Cultural Adversaries. S. Weinberg. Harvard U. Press, Cambridge, Mass., 2003 [2001, reissued]. \$16.95 paper (283 pp.). ISBN 0-674-01120-1

Feynman's Rainbow: A Search for Beauty in Physics and in Life. L. Mlodinow. Warner Books, New York, 2003. \$21.00 (171 pp.). ISBN 0-446-53045-X

Has Science Found God? The Latest Results in the Search for Purpose in the Universe. V. J. Stenger. Prometheus Books, Amherst, N.Y., 2003. \$30.00 (373 pp.). ISBN 1-59102-018-2

The Herschel Partnership: As Viewed by Caroline. M. Hoskin. Science History, Cambridge, England, 2003. \$40.00 (182 pp.). ISBN 0-905193-05-9

History of Rocketry and Astronautics. H. Moulin, D. C. Elder, eds. *AAS History Series 25*. Proc. symp., Beijing, China, Oct. 1996. American Astronautical Society, San Diego, Calif., 2003. \$85.00, \$60.00 paper (358 pp.). ISBN 0-87703-498-2, ISBN 0-87703-499-0 paper

Isaac Newton. J. Gleick. Pantheon Books, New York, 2003. \$22.95 (272 pp.). ISBN 0-375-42233-1

Making Truth: Metaphor in Science. T. L. Brown. U. of Illinois Press, Chicago, 2003. \$32.50 (215 pp.). ISBN 0-252-02810-4

Nature Loves to Hide: Quantum Physics and Reality, a Western Perspective. S. Malin. Oxford U. Press, New York, 2003 [2001, reissued]. \$16.95 paper (288 pp.). ISBN 0-19-516109-2

Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics. J. Derbyshire. Joseph Henry Press, Washington, DC, 2003. \$27.95 (422 pp.). ISBN 0-309-08549-7

Tuxedo Park: A Wall Street Tycoon and the Secret Palace of Science That Changed the Course of World War II. J. Conant. Simon & Schuster, New York, 2003 [2002, reissued]. \$14.00 paper (330 pp.). ISBN 0-684-87288-9

Veiled Reality: An Analysis of Present-Day Quantum Mechanical Concepts. B. d'Espagnat. *Frontiers in Physics 91*. Westview Press, Boulder, Colo., 2003. \$45.00 paper (474 pp.). ISBN 0-8133-4087-X

Instrumentation and Techniques

Review of Progress in Quantitative Nondestructive Evaluation. Vols. 22A and 22B. D. O. Thompson, D. E. Chimenti, eds. *AIP Conference Proceedings 657*. Proc. mtg., Bellingham, Wash., July 2002. AIP, Melville, N.Y., 2003. \$398.00 set (1919 pp. set). ISBN 0-7354-00117-9, CD-ROM



Glassman. High Voltage. Low Profile. Perfect Fit.

Compact size and Air Insulation—two things that go together with Glassman's family of **Low-height** High Voltage DC power supply products. Featuring our 120W FC, 300W FX, 1.2kW EQ and 10kW LQ, Glassman power supplies are known throughout the industry as being the most reliable DC power supplies available today and are exclusively provided with Air Insulation technology, which offer reliability and serviceability advantages versus competing solid dielectric technologies.

With product Models ranging from 500V-100kV output, Glassman power supplies feature:

- High Frequency switch-mode technology
- Low-stored energy
- Over-current and overload protection
- Advanced arc management circuitry
- RS-232 digital interface capability

Visit Glassman's website at www.glassmanhv.com for more information about Glassman's low-height family or contact us at 908-638-3800.



Check out our new website
www.glassmanhv.com



GLASSMAN HIGH VOLTAGE INC.

Designing Solutions for High Voltage and Vacuum
Processing DC Power Supply Applications

Glassman High Voltage, Inc., 124 West Main Street, PO Box 317
High Bridge, NJ 08829-0317

Phone: (908) 638-3800, FAX: (908) 638-3700

www.glassmanhv.com email: sales@glassmanhv.com

In Europe, Glassman Europe Limited (UK) +44 1256 883007, FAX: +44 1256 883017

In Asia, Glassman Japan Limited +81 45 902 9988, FAX: +81 45 902 2268

Transmission Electron Microscopy of Semiconductor Nanostructures: An Analysis of Composition and Strain State. A. Rosenauer. *Springer Tracts in Modern Physics* 182. Springer-Verlag, New York, 2003. \$149.00 (238 pp.). ISBN 3-540-00414-9

Materials Science

Electronic Basis of the Strength of Materials. J. J. Gilman. Cambridge U. Press, New York, 2003. \$90.00 (280 pp.). ISBN 0-521-62005-8

Electronic Structure and Magnetism of Complex Materials. D. J. Singh, D. A. Papaconstantopoulos, eds. *Springer Series*

in Materials Science 54. Springer-Verlag, New York, 2003. \$89.95 (326 pp.). ISBN 3-540-43382-1

Magnetic Materials: Fundamentals and Device Applications. N. A. Spaldin. Cambridge U. Press, New York, 2003. \$110.00, \$40.00 *paper* (213 pp.). ISBN 0-521-81631-9, ISBN 0-521-01658-4 *paper*

Point Defects in Semiconductors and Insulators: Determination of Atomic and Electronic Structure From Paramagnetic Hyperfine Interactions. J.-M. Spaeth, H. Overhof. *Springer Series in Materials Science* 51. Springer-Verlag, New York, 2003. \$119.00 (490 pp.). ISBN 3-540-42695-7

Spin Dynamics in Confined Magnetic Structures II. B. Hillebrands, K. Ounadjela, eds. *Topics in Applied Physics* 87. Springer-Verlag, New York, 2003. \$189.00 (321 pp.). ISBN 3-540-44084-4

Topics in the Theory of Solid Materials. J. M. Vail. *Series in Materials Science and Engineering*. IOP, Philadelphia, 2003. \$44.99 *paper* (368 pp.). ISBN 0-7503-0729-3

Nuclear Physics

Exotic Nuclei and Atomic Masses. J. Äystö, P. Dendooven, A. Jokinen, M. Leino, eds. Proc. conf., Hämeenlinna, Finland, July 2001. Springer-Verlag, New York, 2003. \$179.00 (540 pp.). ISBN 3-540-00101-8

Optics and Photonics

Optical Angular Momentum. L. Allen, S. M. Barnett, M. J. Padgett. IOP, Philadelphia, 2003. \$105.00 (300 pp.). ISBN 0-7503-0901-6

Solid-State Lasers: A Graduate Text. W. Koechner, M. Bass. *Advanced Texts in Physics*. Springer-Verlag, New York, 2003. \$59.95 (409 pp.). ISBN 0-387-95590-9

Particle Physics

Few-Body Problems in Physics '02. R. Krivec, B. Golli, M. Rosina, S. Širca, eds. *Few-Body Systems* 14. Proc. conf., Bled, Slovenia, Sept. 2002. Springer-Verlag, New York, 2003. \$99.00 (428 pp.). ISBN 3-211-83900-3

Hadron Physics. A. H. Blin, B. Hiller, A. A. Osipov, M. C. Ruivo, E. van Beveren, eds. *AIP Conference Proceedings* 660. Proc. wksp., Coimbra, Portugal, Sept. 2002. AIP, Melville, N.Y., 2003. \$170.00 (406 pp.). ISBN 0-7354-0120-9

Quantum Chromodynamics: High Energy Experiments and Theory. G. Dissertori, I. G. Knowles, M. Schmelling. *International Series of Monographs on Physics* 112. Oxford U. Press, New York, 2003. \$99.50 (538 pp.). ISBN 0-19-850572-8

Plasmas and Fusion

High-Energy Phenomena in Electric Discharges in Dense Gases: Theory, Experiment and Natural Phenomena. L. P. Babich. *ISTC Science and Technology Series* 2. Futurepast, Arlington, Va., 2003. \$145.00 (358 pp.). ISBN 0-9710464-1-7

The Physics of Laser Plasma Interactions. W. L. Kruer. *Frontiers in Physics* 73. Westview Press, Boulder, Colo., 2003. \$43.00 *paper* (182 pp.). ISBN 0-8133-4083-7

Popularizations

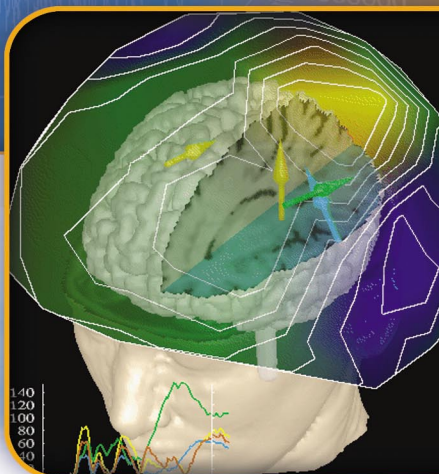
The Big Splat, or How Our Moon Came to Be. D. Mackenzie. Wiley, Hoboken, N.J., 2003. \$24.95 (232 pp.). ISBN 0-471-15057-6

The Black Hole at the Center of Our Galaxy. F. Melia. Princeton U. Press, Princeton, N.J., 2003. \$29.95 (189 pp.). ISBN 0-691-09505-1

Echo of the Big Bang. M. D. Lemonick. Princeton U. Press, Princeton, N.J., 2003. \$24.95 (215 pp.). ISBN 0-691-10278-3

Save \$300 on IDL 6.0

The most significant release of IDL in over six years has arrived with new features and a rare introductory offer!



Save \$300 on the standard U.S. price of IDL 6.0 when you purchase a new license by December 31, 2003.

Call now to learn how this industry-leading software can help you:

- Analyze, visualize, and display data easier than ever before with an interactive set of **IDL Intelligent Tools™ (iTools)**
- Distribute compiled IDL code, applets, or entire applications without additional licenses or fees with **IDL Virtual Machine™**
- Easily access external Java objects within your IDL code with **IDL-Java Bridge™**



Offer expires December 31, 2003. Take advantage of this limited-time discount now - call 303.786.9900 or visit us at www.RSIinc.com/PTNov3 for discount details.

www.RSIinc.com/PTNov3 • 303.786.9900

RSI
Research Systems Inc.

Facts and Mysteries in Elementary Particle Physics. M. J. G. Veltman. World Scientific, River Edge, N.J., 2003. \$48.00, \$19.00 *paper* (340 pp.). ISBN 981-238-148-1, ISBN 981-238-149-X *paper*

Frontiers in High Energy Density Physics: The X-Games of Contemporary Science. National Research Council of the National Academies. National Academies Press, Washington, DC, 2003. \$39.00 *paper* (160 pp.). ISBN 0-309-08637-X

In the Blink of an Eye. A. Parker. Perseus, Cambridge, Mass., 2003. \$24.95 (316 pp.). ISBN 0-7382-0607-5

An Intimate Look at the Night Sky. C. Raymo. Walker, New York, 2003 [2001, reissued]. \$16.00 *paper* (242 pp.). ISBN 0-8027-7670-1

Nanocosm: Nanotechnology and the Big Changes Coming From the Inconceivably Small. W. I. Atkinson. AMACOM, New York, 2003. \$24.95 (306 pp.). ISBN 0-8144-7181-1

Nanotechnology: A Gentle Introduction to the Next Big Idea. M. Ratner, D. Ratner. Prentice Hall, Upper Saddle River, N.J., 2003. \$24.99 *paper* (188 pp.). ISBN 0-13-101400-5

Nature Via Nurture: Genes, Experience, and What Makes Us Human. M. Ridley. HarperCollins, New York, 2003. \$25.95 (326 pp.). ISBN 0-06-000678-1

The One True Platonic Heaven: A Scientific Fiction on the Limits of Knowledge. J. L. Casti. Joseph Henry Press, Washington, DC, 2003. \$22.95 (160 pp.). ISBN 0-309-08547-0

The Origins of Life and the Universe. P. F. Lurquin. Columbia U. Press, New York, 2003. \$59.50, \$27.50 *paper* (217 pp.). ISBN 0-231-12654-9, ISBN 0-231-12655-7 *paper*

Our Final Hour—A Scientist's Warning: How Terror, Error, and Environmental Disaster Threaten Humankind's Future in This Century—On Earth and Beyond. M. Rees. Basic Books, New York, 2003. \$25.00 (228 pp.). ISBN 0-465-06862-6

The Particle Odyssey: A Journey to the Heart of the Matter. F. Close, M. Marten, C. Sutton. Oxford U. Press, New York, 2002. \$45.00 (240 pp.). ISBN 0-19-850486-1

The Riemann Hypothesis: The Greatest Unsolved Problem in Mathematics. K. Sabbagh. Farrar, Straus and Giroux, New York, 2002. \$25.00 (340 pp.). ISBN 0-374-25007-3

The Rough Guide to the Universe. J. Scalzi. Rough Guides, New York, 2003. \$16.95 *paper* (390 pp.). ISBN 1-85828-939-4

A Short History of Nearly Everything. B. Bryson. Broadway Books, New York, 2003. \$27.50 (544 pp.). ISBN 0-7679-0817-1

Solar System. N. Hey. Weidenfeld & Nicolson, London, 2002. \$29.95 (272 pp.). ISBN 0-304-35994-7

Society and Government

Science, Money, and Politics: Political Triumph and Ethical Erosion. D. S.

Greenberg. U. of Chicago Press, Chicago, 2003 [2001, reissued]. \$20.00 *paper* (530 pp.). ISBN 0-226-30635-6

Statistical Physics and Thermodynamics

Rarefied Gas Dynamics. A. D. Ketsdever, E. P. Muntz, eds. *AIP Conference Proceedings* 663. Proc. symp., Whistler, British Columbia, Canada, July 2002. AIP, Melville, N.Y., 2003. \$295.00 (1093 pp.). ISBN 0-7354-0124-1, *CD-ROM*

Statistical Physics and Economics: Concepts, Tools, and Applications. M. Schulz. *Springer Tracts in Modern Physics* 184. Springer-Verlag, New York, 2003.

\$149.00 (244 pp.). ISBN 0-387-00282-0

Statistical Thermodynamics of Surfaces, Interfaces, and Membranes. S. A. Safran. *Frontiers in Physics* 90. Westview Press, Boulder, Colo., 2003. \$48.50 *paper* (266 pp.). ISBN 0-8133-4079-9

Theory and Mathematical Methods

Concepts of Highly Excited Electronic Systems. J. Berakdar. Wiley-VCH, Hoboken, N.J., 2003. \$109.00 (299 pp.). ISBN 3-527-40335-3

Cylindrical Antennas and Arrays. R. W. P. King, G. J. Fikioris, R. B. Mack. Cambridge U. Press, New York, 2002.

Modular Low Temperature Instruments



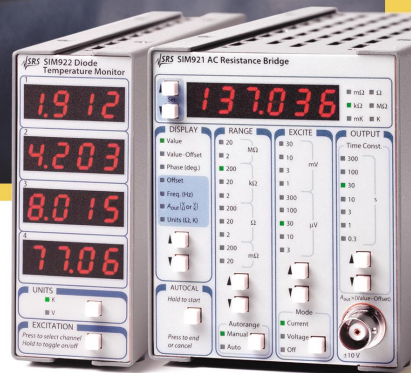
The flexible platform for cryogenic research

Make accurate ultra low temperature measurements with the SIM921 AC Resistance Bridge. With constant current or voltage modes and variable frequency sinusoidal excitation, it is ideal for sensitive thermometry.

SIM922 Silicon Diode and SIM923 Platinum RTD Monitors are perfect companion modules. They display 4 channels with standard or custom calibration curves.

Other Modules

SIM900 Mainframe (w/RS-232)	\$995
opt 1 GPIB (intro. offer)	Free
SIM910 JFET voltage preamp	\$975
SIM911 Bipolar voltage preamp	\$975
SIM914 300 MHz preamp	\$675
SIM960 Analog PID controller	\$1550
SIM970 Four channel DVM	\$1390



AC Resistance Bridge

SIM921...\$2550

- Accurate millikelvin thermometry
- Sub-femtowatt excitation
- Measures 1 mΩ to 100 MΩ
- 2 Hz to 60 Hz variable frequency

Temperature Monitors

SIM922 (Si Diode) or SIM923 (Pt RTD)...\$495

- 1.4 K to 475 K with silicon diodes
- 20 K to 873 K with platinum RTDs
- Four independent channels
- Memory for 4 calibration curves



Stanford Research Systems

1290-D Reamwood Avenue, Sunnyvale, CA 94089

Phone (408) 744-9040 • Fax (408) 744-9049

email: info@thinkSRS.com • www.thinkSRS.com

\$160.00 (628 pp.). ISBN 0-521-43107-7

The Global Approach to Quantum Field Theory. Vols. 1 and 2. B. DeWitt. *International Series of Monographs on Physics 114*. Oxford U. Press, New York, 2003. \$195.00 set (1042 pp. set). ISBN 0-19-851093-4 set

Intelligent Data Analysis: An Introduction. 2nd edition. M. Berthold, D. J. Hand, eds. Springer-Verlag, New York, 2003 [1999]. \$64.95 (514 pp.). ISBN 3-540-43060-1

Introduction to Shape Optimization: Theory, Approximation, and Computation. J. Haslinger, R. A. E. Mäkinen. *Advances in Design and Control*. Society for Industrial and Applied Mathematics, Philadelphia, 2003. \$76.00 (273 pp.). ISBN 0-89871-536-9

The Lanczos Method: Evolution and Application. L. Komzsik. *Software, Environments, Tools*. Society for Industrial and Applied Mathematics, Philadelphia, 2003. \$42.00 paper (87 pp.). ISBN 0-89871-537-7

Numerical Methods for Delay Differential Equations. A. Bellen, M. Zennaro. *Numerical Mathematics and Scientific Computation*. Oxford U. Press, New York, 2003. \$100.00 (395 pp.). ISBN 0-19-850654-6

Quantum Field Theory in a Nutshell. A. Zee. Princeton U. Press, Princeton, N.J., 2003. \$49.50 (518 pp.). ISBN 0-691-01019-6

Quantum Mechanics: Principles and Formalism. R. McWeeny. Dover, Mineola,

N.Y., 2003 [1972, reissued]. \$12.95 paper (155 pp.). ISBN 0-486-42829-X

Quantum Theory of Tunneling. M. Razavy. World Scientific, River Edge, N.J., 2003. \$88.00, \$48.00 paper (549 pp.). ISBN 981-238-018-3, ISBN 981-283-019-1 paper

Semiclassical Physics. M. Brack, R. K. Bhaduri. *Frontiers in Physics 96*. Westview Press, Boulder, Colo., 2003. \$45.00 paper (458 pp.). ISBN 0-8133-4084-5

The Theory of Generalized Inverses Over Commutative Rings. K. P. S. B. Rao. *Algebra, Logic and Applications 17*. Taylor & Francis, New York, 2002. \$64.00 (167 pp.). ISBN 0-415-27248-3

Undergraduate Texts and Education

Chaos and Time-Series Analysis. J. C. Sprott. Oxford U. Press, New York, 2003. \$85.00, \$45.00 paper (507 pp.). ISBN 0-19-850839-5, ISBN 0-19-850840-9 paper

Essential Mathematical Biology. N. F. Britton. *Springer Undergraduate Mathematics Series*. Springer-Verlag, New York, 2003. \$34.95 paper (335 pp.). ISBN 1-85233-536-X

Fields, Flows and Waves: An Introduction to Continuum Models. D. F. Parker. *Springer Undergraduate Mathematics Series*. Springer-Verlag, New York, 2003. \$34.95 paper (270 pp.). ISBN 1-85233-708-7

An Introduction to Chaotic Dynamical Systems. 2nd edition. R. L. Devaney. *Studies in Nonlinearity*. Westview Press, Boulder, Colo., 2003 [1992]. \$40.00 paper (335 pp.). ISBN 0-8133-4085-3

Introduction to Conventional Transmission Electron Microscopy. M. De Graef. Cambridge U. Press, New York, 2003. \$130.00, \$65.00 paper (718 pp.). ISBN 0-521-62006-6, ISBN 0-521-62995-0 paper

Introduction to Physics in Modern Medicine. S. A. Kane. Taylor & Francis, New York, 2003. \$125.00, \$47.95 paper (330 pp.). ISBN 0-415-29963-2, ISBN 0-415-30171-8 paper

Introduction to Tensor Calculus, Relativity and Cosmology. 3rd edition. D. F. Lawden. Dover, Mineola, N.Y., 2002 [1982, reissued]. \$14.95 paper (205 pp.). ISBN 0-486-42540-1

An Introduction to Theoretical Chemistry. J. Simons. Cambridge U. Press, New York, 2003. \$120.00, \$60.00 paper (461 pp.). ISBN 0-521-82360-9, ISBN 0-521-53047-4 paper

Mathematical Modelling With Case Studies: A Differential Equation Approach Using Maple. B. Barnes, G. R. Fulford. Taylor & Francis, New York, 2002. \$80.00, \$31.95 paper (428 pp.). ISBN 0-415-29803-2, ISBN 0-415-29804-0 paper

The Physics Companion. A. C. Fischer-Cripps. IOP, Philadelphia, 2003. \$15.99 paper (378 pp.). ISBN 0-7503-0953-9 ■

PRECISION MEASUREMENT GRANTS

The National Institute of Standards and Technology (NIST) expects to make two new Precision Measurement Grants that start on 30 September 2004. Each grant is in the amount of \$50,000 per year and may be renewed for two additional years for a total of \$150,000. They are awarded primarily to faculty members at U.S. universities or colleges for research in the field of fundamental measurement or the determination of fundamental physical constants.

Applications must reach NIST by **2 February 2004**. Details are on the Web at: physics.nist.gov/pmg.

For further information contact:

Dr. Peter J. Mohr, Manager
NIST Precision Measurement Grants Program
NIST, Building 225, Room B161
100 Bureau Drive, Stop 8401
Gaithersburg, MD 20899-8401
301-975-3217

NIST

National Institute of Standards and Technology
Technology Administration, U.S. Department of Commerce



Book Sale

The Institute of Physics Book Sale now on.
1 October – 31 December 2003

- Up to 75% off physics books
- Over 300 discounted books
- Research monographs, textbooks, reference books and popular science
- Individuals, booksellers and libraries can take advantage of the offers
- All areas of physics and related subjects

Visit www.bookmarkphysics.iop.org for more details and a full list of sale books.

IOP | www.bookmarkphysics.iop.org

Statistical Mechanics Made Simple: A Guide for Students and Researchers.

D. C. Mattis. World Scientific, River Edge, N.J., 2003. \$48.00, \$24.00 *paper* (252 pp.). ISBN 981-238-165-1, ISBN 981-238-166-X *paper*

Structure and Dynamics: An Atomic View of Materials. M. T. Dove. *Oxford Master Series in Condensed Matter Physics*. Oxford U. Press, New York, 2003. \$85.00, \$42.50 *paper* (334 pp.). ISBN 0-19-850677-5, ISBN 0-19-850678-3 *paper*

The Theory of the Electromagnetic Field. D. M. Cook. Dover, Mineola, N.Y., 2002 [1975, reissued]. \$26.95 *paper* (510 pp.). ISBN 0-486-42567-3

Vectors and Tensors in Engineering and Physics. 2nd edition. D. A. Danielson. Westview Press, Boulder, Colo., 2003 [1992]. \$40.00 *paper* (282 pp.). ISBN 0-8133-4080-2

Miscellaneous

Handbook of Reliability Engineering. H. Pham, ed. Springer-Verlag, New York, 2003. \$199.00 (663 pp.). ISBN 1-85233-453-3

The Oxford Companion to the History of Modern Science. J. L. Heilbron, ed. Oxford U. Press, New York, 2003. \$110.00 (941 pp.). ISBN 0-19-511229-6

The Path: A One-Mile Walk Through the Universe. C. Raymo. Walker, New York, 2003. \$21.00 (197 pp.). ISBN 0-8027-1402-1

STACS 2003: 20th Annual Symposium on Theoretical Aspects of Computer Science. H. Alt, M. Habib, eds. *Lecture Notes in Computer Science 2607*. Proc. symp., Berlin, Germany, Feb.–Mar. 2003. Springer-Verlag, New York, 2003. \$102.00 *paper* (700 pp.). ISBN 3-540-00623-0