

measures that allow comparisons of real-world networks to mathematical idealizations.

In chapter seven, the authors discuss recent research findings, including some they themselves have published; they somehow avoid being dogmatic in their presentation. Among the new results described is a generalization of linear response theory clarifying a misconception that appeared in the physics literature a few years ago. The generalization is used to explain how information transfer between complex networks depends on the measures of complexity. It is also used to derive a generalized Onsager principle.

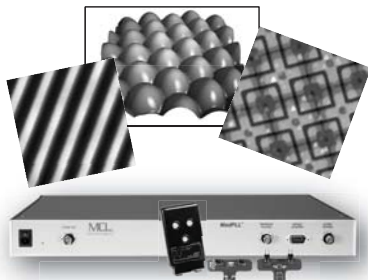
West and Grigolini artfully develop mathematical models for understanding data sets drawn from a variety of venues, and they highlight examples, anecdotes, and historical vignettes that bring the mathematics and its application to life. Consequently, *Complex Webs* presents a distinctive perspective that makes it stand out. I strongly recommend this remarkable book to those interested in learning the mathematical underpinnings of the science of networks and, more importantly, to those thinking of teaching a course in it.

H. Eugene Stanley
Boston University
Boston, Massachusetts

Introducing MadPLL™

Instant AFM and NSOM—just add science.

MadPLL™ includes software, digital PLL controller, probe and amplifier boards, and is fully compatible with Mad City Labs nanopositioning systems.



- Low cost imaging tool
- Automated control
- Integrated package
- Integrated z-axis control loop
- Suitable for resonant probes
- Build your own closed loop AFM!

MCL
MAD CITY LABS INC.

+1 608 298-0855
sales@madcitylabs.com
www.madcitylabs.com

new books

plasmas and fusion

Electron Cyclotron Emission and Electron Cyclotron Resonance Heating (EC-16). R. Prater, ed. Proc. wksp., Sanya, China, Apr. 2010. World Scientific, Hackensack, NJ, 2011. \$168.00 (409 pp.). ISBN 978-981-4340-26-7, CD-ROM

popularizations

101 Quantum Questions: What You Need to Know About the World You Can't See. K. W. Ford. Harvard U. Press, Cambridge, MA, 2011. \$24.95 (291 pp.). ISBN 978-0-674-05099-0

The Blind Spot: Science and the Crisis of Uncertainty. W. Byers. Princeton U. Press, Princeton, NJ, 2011. \$24.95 (208 pp.). ISBN 978-0-691-14684-3

Crashes, Crises, and Calamities: How We Can Use Science to Read the Early-Warning Signs. L. Fisher. Basic Books, New York, 2011. \$23.99 (233 pp.). ISBN 978-0-465-02102-4

The New Universe and the Human Future: How a Shared Cosmology Could Transform the World. N. E. Abrams, J. R. Primack. *The Terry Lectures Series*. Yale U. Press, New Haven, CT, 2011. \$28.00 (238 pp.). ISBN 978-0-300-16508-1

Physics of the Future: How Science Will Shape Human Destiny and Our Daily Lives by the Year 2100. M. Kaku. Doubleday, New York, 2011. \$28.95 (389 pp.). ISBN 978-0-385-53080-4

Relativity for the Questioning Mind. D. F. Styer. Johns Hopkins U. Press, Baltimore, MD, 2011. \$65.00, \$30.00 *paper* (184 pp.). ISBN 978-0-8018-9759-7, ISBN 978-0-8018-9760-3 *paper*

Seven Tales of the Pendulum. G. L. Baker. Oxford U. Press, New York, 2011. \$44.95 (227 pp.). ISBN 978-0-19-958951-7

Six Easy Pieces: Essentials of Physics Explained by Its Most Brilliant Teacher. R. P. Feynman. Basic Books, New York, 2011 [1995, reissued]. \$13.99 *paper* (146 pp.). ISBN 978-0-465-02527-5

Six Not-So-Easy Pieces: Einstein's Relativity, Symmetry, and Space-Time. R. P. Feynman. Basic Books, New York, 2011 [1997, reissued]. \$14.99 *paper* (154 pp.). ISBN 978-0-465-02526-8

Soft Matter: The Stuff That Dreams Are Made Of. R. Piazza. Copernicus Books/Springer, New York, 2011. \$24.95 *paper* (279 pp.). ISBN 978-94-007-0584-5

Strange New Worlds: The Search for Alien Planets and Life Beyond Our Solar System. R. Jayawardhana. Princeton U. Press, Princeton, NJ, 2011. \$24.95 (255 pp.). ISBN 978-0-691-14254-8

Visions of the Multiverse. S. Manly. New Page Books, Pompton Plains, NJ, 2011.

\$15.99 *paper* (271 pp.). ISBN 978-1-60163-129-9

You Are Wrong, Mr. Einstein! Newton, Einstein, Heisenberg and Feynman Discussing Quantum Mechanics. H. Fritzsche (translated from German by J. Rostant). World Scientific, Hackensack, NJ, 2011. \$35.00 (178 pp.). ISBN 978-981-4324-99-1

quantum physics

Deep Beauty: Understanding the Quantum World Through Mathematical Innovation. H. Halvorson, ed. Cambridge U. Press, New York, 2011. \$99.00 (472 pp.). ISBN 978-1-107-00570-9

Heisenberg's Quantum Mechanics. M. Razavy. World Scientific, Hackensack, NJ, 2011. \$120.00, \$61.00 *paper* (657 pp.). ISBN 978-981-4304-10-8, ISBN 978-981-4304-11-5 *paper*

Mathematical Foundations of Quantum Information and Computation and Its Applications to Nano- and Bio-systems. M. Ohya, I. Volovich. *Theoretical and Mathematical Physics*. Springer, New York, 2011. \$169.95 (759 pp.). ISBN 978-94-007-0170-0

Non-Hermitian Quantum Mechanics. N. Moiseyev. Cambridge U. Press, New York, 2011. \$105.00 (394 pp.). ISBN 978-0-521-88972-8

Quantum Bio-Informatics IV: From Quantum Information to Bio-Informatics. L. Accardi, W. Freudenberg, M. Ohya, eds. *QP-PQ: Quantum Probability and White Noise Analysis 28*. World Scientific, Hackensack, NJ, 2011. \$190.00 (490 pp.). ISBN 978-981-4343-75-6

Quantum Field Theory and Its Macroscopic Manifestations: Boson Condensation, Ordered Patterns and Topological Defects. M. Blasone, G. Vitiello, P. Jizba. Imperial College Press, London, 2011. \$150.00 (526 pp.). ISBN 978-1-84816-280-8

society and government

Nanotechnology Standards. V. Mura-shov, J. Howard. *Nanostructure Science and Technology*. Springer, New York, 2011. \$129.00 (260 pp.). ISBN 978-1-4419-7852-3

space and planetary science

Drifting on Alien Winds: Exploring the Skies and Weather of Other Worlds. M. Carroll. Springer, New York, 2011. \$39.95 (238 pp.). ISBN 978-1-4419-6916-3

The Kaguya Lunar Atlas: The Moon in High Resolution. M. Shirao, C. A. Wood. Springer, New York, 2011. \$39.95 (173 pp.). ISBN 978-1-4419-7284-2

statistical physics and thermodynamics

Bayesian Inference and Maximum Entropy Methods in Science and Engineering. A. Mohammad-Djafari, J.-F. Bercher, P. Bessière, eds. *AIP Conference*

Proceedings 1305. Proc. wksp., Chamonix, France, July 2010. AIP, Melville, NY, 2010. \$309.00 (499 pp.). ISBN 978-0-7354-0860-9, CD-ROM

Is There a Temperature? Conceptual Challenges at High Energy, Acceleration and Complexity. T. S. Biró. *Fundamental Theories of Physics 1014*. Springer, New York, 2011. \$169.00 (310 pp.). ISBN 978-1-4419-8040-3

Kinetic Theory of Granular Gases. N. V. Brilliantov, T. Pöschel. *Oxford Graduate Texts*. Oxford U. Press, New York, 2010 [2004, reissued]. \$99.00, \$49.50 *paper* (329 pp.). ISBN 978-0-19-853038-1, ISBN 978-0-19-958813-8 *paper*

Thermal Physics: Entropy and Free Energies. 2nd ed. J. C. Lee. World Scientific, Hackensack, NJ, 2011 [2002]. \$78.00 (375 pp.). ISBN 978-981-4340-76-2

texts and education

Analytic Combustion: With Thermodynamics, Chemical Kinetics, and Mass Transfer. A. W. Date. Cambridge U. Press, New York, 2011. \$115.00 (345 pp.). ISBN 978-1-107-00286-9

Carbon Nanotube and Graphene Device Physics. H.-S. P. Wong, D. Akinwande. Cambridge U. Press, New York, 2011. \$85.00 (251 pp.). ISBN 978-0-521-51905-2

Complex Webs: Anticipating the Improbable. B. J. West, P. Grigolini. Cambridge U. Press, New York, 2011. \$75.00 (375 pp.). ISBN 978-0-521-11366-3

Developing a Talent for Science. R. C. Jansen. Cambridge U. Press, New York, 2011. \$75.00, \$27.99 *paper* (175 pp.). ISBN 978-0-521-19312-2, ISBN 978-0-521-14961-7 *paper*

Electronic Thin-Film Reliability. K.-N. Tu. Cambridge U. Press, New York, 2011. \$85.00 (396 pp.). ISBN 978-0-521-51613-6

Energy and the Environment: Choices and Challenges in a Changing World. R. Toossi. Verve, Los Angeles, 2010. \$89.95 *paper* (410 pp.). ISBN 978-1-4276-1866-5

The Feynman Lectures on Physics. Vols. 1–3. Vol. 1: Mainly Mechanics, Radiation, and Heat. Vol. 2: Mainly Electromagnetism and Matter. Vol. 3: Quantum Mechanics. R. P. Feynman, R. B. Leighton, M. Sands. Basic Books, New York, 2011. \$195.00 *set* (1552 pp. *set*). ISBN 978-0-465-02382-0

Fractional Calculus: An Introduction for Physicists. R. Herrmann. World Scientific, Hackensack, NJ, 2011. \$85.00 (261 pp.). ISBN 978-981-4340-24-3

Fundamentals of Attosecond Optics. Z. Chang. CRC Press/Taylor & Francis, Boca Raton, FL, 2011. \$89.95 (519 pp.). ISBN 978-1-4200-8937-0

Heat Generation and Transport in the Earth. C. Jaupart, J.-C. Mareschal. Cam-

bridge U. Press, New York, 2011. \$75.00 (464 pp.). ISBN 978-0-521-89488-3

Introduction to Proteins: Structure, Function, and Motion. A. Kessel, N. Ben-Tal. *Chapman & Hall/CRC Mathematical and Computational Biology Series*. CRC Press/Taylor & Francis, Boca Raton, FL, 2011. \$79.95 (626 pp.). ISBN 978-1-4398-1071-2

Introduction to the Theory of the Early Universe: Cosmological Perturbations and Inflationary Theory. D. S. Gorbunov, V. A. Rubakov. World Scientific, Hackensack, NJ, 2011. \$156.00, \$76.00 *paper* (489

pp.). ISBN 978-981-4322-22-5, ISBN 978-981-4343-78-7 *paper*

Introduction to the Theory of the Early Universe: Hot Big Bang Theory. D. S. Gorbunov, V. A. Rubakov. World Scientific, Hackensack, NJ, 2011. \$158.00, \$78.00 *paper* (473 pp.). ISBN 978-981-4322-24-9, ISBN 978-981-4343-97-8 *paper*

Introductory Quantum Physics and Relativity. J. Dunningham, V. Vedral. Imperial College Press, London, 2011. \$80.00, \$42.00 *paper* (227 pp.). ISBN 978-1-84816-514-4, ISBN 978-1-84816-515-1 *paper* ■



Springer

the language of science

springer.com

Win an iPad 2!

Springer Materials



► Search SpringerMaterials, answer a simple question to win an iPad 2!

WIN AN
IPAD2

Come to the Springer Booth at MRS Fall 2011,
or look for details at ► springer.com/springermaterials