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BOOK REPORTS

The Book Reports section is a regular feature of *Computers & Mathematics with Applications.* It is an unconventional section. The Editors decided to break with the longstanding custom of publishing either lengthy and discursive reviews of a few books, or just a brief listing of titles. Instead, we decided to publish every important material detail concerning those books submitted to us by publishers, which we judge to be of potential interest to our readers. Hence, breaking with custom, we also publish a complete table of contents for each such book, but no review of it as such. We welcome our readers' comments concerning this enterprise. Publishers should submit books intended for review to the Editor-in-Chief,

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Kaon Physics. Edited by Jonathan L. Rosner and Bruce D. Winstein. The University of Chicago Press, Chicago. (2001). 624 pages. $70.00, £44.50.

Contents:

Preface and acknowledgments. I. Kaon physics: History, progress, promise. 1. Kaon physics: The first 50+ years (Richard H. Dalitz). 2. Overview of kaon physics (R.D. Peccei). 3. Baryogenesis and low-energy CP violation (Mihir P. Worah). 4. Kaon physics in supersymmetric theories (Lawrence Hall). II. Direct CP violation in kaon decays. 5. Theoretical status of ε'/ε (Andrzej J. Buras). 6. Re(ε'/ε) result from KTeV: An observation of direct CP violation (Yee Bob Hsiung). 7. KLOE at DAΦNE: Present status and progress (A. Antonelli). 8. First result on Re(ε'/ε) measurement from the NA48 experiment at CERN (M.S. Sozzi). 9. The superweak theory 35 years later (L. Wolfenstein). 10. Can ε'/ε be supersymmetric? (Hitoshi Murayama). 11. ε'/ε in the $1/N_c$ expansion (T. Hambye and P.H. Soldan). 12. Estimating ε'/ε in the standard model (S. Bertolini). 13. Prospects for calculating ε_K and ε' from lattice LCD (Rajan Gupta). 14. Weak matrix elements in the large-N_c limit (William A. Bardeen). III. Time reversal violation and CPT studies. 15. CP and T violation in the decay $K_L \to \pi^+\pi^-e^+e^-$ and related processes (L.M. Sehgal). 16. $K_L^0 \to \pi^+\pi^-e^+e^-$ in chiral perturbation theory (Martin J. Savage). 17. KTeV results on $K_L \to \pi^+\pi^-e^+e^-$ (A. Ledovskoy). 18. NA48 results on ${K^0}_L \to \pi^+\pi^-e^+e^-$ (S. Wronka). 19. KEK E162 results on $K_L \to \pi^+\pi^-e^+e^-$ (Tadashi Nomura). 20. Direct observation of time reversal noninvariance in the neutral-kaon system (P. Bloch). 21. Transverse muon polarization in $K_{\mu 3}^+$ decay (G.Y. Lim). 22. Limits on T and CP violation from permanent electric dipole moments (Michael Romalis). 23. Bounds on CPT and Lorentz violation from experiments with kaons (V. Alan Kostelecký). 24. CPT studies with KLOE (S. Di Falco and M. Incagli). 25. Tests of CPT invariance in the CPLEAR experiment (P. Bloch). 26. Observations of $K_S^0 \to \pi e\nu$ (N.M. Ryskulov). 27. Studies of kaon decays at the ϕ resonance (E.P. Solodov). IV. Theoretical topics in kaon physics. 28. ε'/ε from lattice QCD (M. Ciuchini, E. Franco, L. Giusti, V. Lubicz and G. Martinelli). 29. Lattice determinations of the strange quark mass (Sinéad Ryan). 30. Large-N_c QCD and weak matrix elements (Eduardo de Rafael). 31. Penguin amplitudes: Charming contributions (M. Ciuchini, E. Franco, G. Martinelli and L. Silvestrini). 32. Final state interactions: From strangeness to beauty (Alexey A. Petrov). V. Rare kaon decays. 33. Standard model vs. new physics in rare kaon decays (Gino Isidori). 34. New result on $K^+ \to \pi^+\nu\nu$ from BNL E787 (G. Redlinger). 35. Search for lepton flavor violation in $K_L^0 \to \mu^\pm e^\mp$ decay (W. Molzon). 36. A review of recent results from BNL E865: Rare K^+ decays in flight (Michael E. Zeller). 37. I: Chiral perturbation theory for kaons; II: The $\Delta I = 1/2$-rule in the chiral limit (Johan Bijnens). 38. NA48 rare decay results (L. Köpke). 39. New rare decay results from KTeV (J. Whitmore). 40. Measurement of $K^+ \to \pi^+\pi^0\gamma$ from BNL E787 (Takeshi K. Komatsubara). 41. Brookhaven E871: $K_L^0 \to \mu^+\mu^-$ and $K_L^0 \to e^+e^-$ (David A. Ambrose). VI. Hyperon physics. 42. CP violation in hyperon decays (Sandip Pakvasa). 43. Status report from the HyperCP experiment at Fermilab (Sharon L. White). 44. Recent results in weak hyperon decays (Nickolas Solomey). VII. Charm: CP violation and mixing. 45. Results from Fermilab charm experiment E791 (Milind V. Purohit). 46. CP Violation, $D^0 - \overline{D}^0$ mixing, and rare and forbidden decays in FOCUS (D. Pedrini). 47. Search for $D^0 - \overline{D}^0$ mixing (Harry N. Nelson). VIII. The physics of B mesons. 48. CP violation and B physics (Michael Gronau). 49. $|V_{cb}|$ and $|V_{ub}|$ from B decays: Recent progress and limitations (Zoltan Ligeti). 50. Recent CLEO results on rare B decays (Roy A. Briere). 51. CP violation in B decays at the Tevatron (I. Joseph Kroll). 52. Status of Belle (K. Kinoshita). 53. Progress and results from the SLAC B factory (Erich W. Varnes). IX. Future opportunities in K physics. 54. Kaon physics: Future opportunities (G. Buchalla). 55. A future kaon physics program at Fermilab (Peter S. Cooper). 56. Future kaon initiatives at BNL (L. Littenberg). 57. Future CERN kaon program (George Kalmus). 58. Future plan for kaon physics at KEK (Takao Inagaki). 59. Experiments in the separated kaon beam of the IHEP accelerator (L.G. Landsberg and V.F. Obraztsov). 60. The role of future kaon experiments (Paolo Franzini). 61. Future opportunities in K physics (Frederick J. Gilman). X. Summary and outlook. 62. KAON 99: Summary and perspective (William J. Marciano). Contributors.

Global E-Commerce Strategies for Small Businesses. By Eduardo da Costa. The MIT Press, Cambridge, MA. (2001). 202 pages. $24.95.

Contents:

Preface. Acknowledgments. 1. The growing worldwide importance of small companies. 2. The information industry and the internet economy. 3. Electronic commerce: Opportunities in the international market. 4. Are we ready? Main obstacles to international trade for small companies. 5. Case studies: Successful small companies in the global market. 6. "Can I do it too?" Prerequisites for success and some common pitfalls. 7. Setting up a global small business: A checklist of action steps. 8. What next? A better world? Notes. Index.

Net_Condition: Art and Global Media. Edited by Peter Weibel and Timothy Druckrey. The MIT Press, Cambridge, MA. (2001). 399 pages. $39.95.

Contents:

Initial conditions. The project (Peter Weibel). `[...]J8~g#|\;Net.Art{-^s1[...` (Timothy Druckrey). Social conditions. The net and the self: Working notes for a critical theory of the informational society (Manuel Castells). From a culture-debating to a culture consuming public (Jürgen Habermas). Technologies to the people® (Daniel Garcia Andújar). A correction structure (Niek van de Steeg). The Berkeley oracle (Jochen Gerz). net.shop#2 (Syndicate). Media conditions. On television (Pierre Bourdieu). Event/transformation/information: Enacting the image (Timothy Druckrey). Attention in the media age (Florian Rötzer). net.art.archive (Ma-

rina Grzinic and Aina Smid). The rules are no game (MAOD) (Markus Huemer). The shredder/digital landfill (Mark Napier). Empire 24/7 (Wolfgang Staehle). Netomat™ (Maciej Wisniewski). Community conditions. The artreporter (Dave Bruckmayr and Gaylord Aulke). Backspace. The intruder (Natalie Bookchin). Graphic jam (Andy Deck and Mark Napier). esc to begin. Nuzzle afar (Masaki Fujihata). The difference engine #3 (Lynn Hershman). a-aktion.com (Timothée Ingen-Housz). Konsum art.server (Margarete Jahrmann and Max Moswitzer). Smell.bytes™ (Jenny Marketou). Step to ... word (Alexandru Patatics). Starrynight (Rhizome). The tables turned (Paul Sermon). The distributed legible city (Jeffrey Shaw). FuckU-FuckMe (Alexej Shulgin). Ideological conditions. The spectralization of Europe (Marina Grzinic). Globalization, media, and the war against Yugoslavia (Diana Johnstone). Colour separation (Mongrel). Critical conditions. Map and land, media and reality (Peter Weibel). From territories to intervals—Some preliminary thoughts on the economy of time/the time (Siegfried Zielinski). re-mail (Joachim Blank and Karl-Heinz Jeron). References (Ricardo Iglesias). Contestational robots (Institute for Applied Autonomy). Artistic conditions. Net art. On the history of artistic work with telecommunications media (Tilman Baumgärtel). Ars telematica: The aesthetics of intercommunication (Claudia Giannetti). Everyone a mediator (Gerhard Johann Lischka). Radical software (Jeffrey Shaw). Z (Antoni Abad). The book after the book (Giselle Beiguelman). Waxweb (David Blair). Introduction to net.art (1994–1999) (Alexej Shulgin, Natalie Bookchin, Joachim Blank and Karl-Heinz Jeron). Adversarial collaborations (Janet Cohen, Keith Frank and Jon Ippolito). ASCII history of art for the blind (Vuk Cosic). The world's first collaborative sentence (Douglas Davis). Séance box (Ken Feingold). Impressing velocity (Masaki Fujihata). Dislocation of intimacy (Ken Goldberg and Bob Farzin). Distinctio realis; Essay on ontological solitude No. 1 (Markus Huemer). <http://www.humbot.org> (h|u|m|b|o|t). Barcode—III. Immersion (Darij Kreuh). Vanndemar Memex or Laura Croft stripped bare by her assassins, even (Marc Lafia). File transfer protocol (Olia Lialina). The Freud-Lissitzky navigator (Lev Manovich). The book of metamorphoses (Chihiro Minato). Engulf (Motohiko Odani). Telematic manifesto (Randall Packer). Net.art browser (Jeffrey Shaw and Benjamin Weil). Verbarium (Christa Sommerer and Laurent Mignonneau). Fiber wave III (Sei Makoto Watanabe). Sound conditions. Musical systems and the constitution of places on the internet (Golo Föllmer). Radio as medium and metaphor (Heidi Grundmann). Changing positions or: Welcome to transbabel! (42). Truth in clouds (Nicolas Collins). Musikschrank rheingold (Johannes Goebel, Torsten Belschner and Bernhard Sturm). net.radio.days (mikro e.V.) ₵apital magneti₵ (Mark Trayle). Xchange. Cinematic conditions. Small archaeological experiments in the media age: Ivens, Marker, Farocki (Christa Blümlinger). Broadcast conditions. The new totality (Armand Mattelart). Surveillance conditions. What:you:get (Roberto Aguirrezabala). Drive, track 3 (Jordan Crandall). Web stalker (I/O/D). The designers republic. DeeDee Halleck/David Thorne. Subversive conditions. How the etoy campaign was won. An agent's report (agent.NASDAQ aka Reinhold Grether). etoy. ASCII art ensemble. Remote control (Shane Cooper). Woven presents (Steven Greenwood). Ctrl-space (JODI). ®™ark. Gender conditions. Old boys network. Bodies INCorporated (Victoria Vesna). Urban conditions. Martine Aballéa. IO_dencies (Knowbotic Research). The net.institute as urban interface (Luther Blissett and Aleph Group). Islands of non-locality (Peter Weibel). Ghost city (Jody Zellen). Tomato. Economic conditions. Considering the world economy (Immanuel Wallterstein). Cooking-pot markets: An economic model for 'free' resources on the internet (Rishab Aiyer Ghosh). Militant particularism: Beta testing a new society (Vincent Mosco). Transnational telecommunications and the global reorganization of production (Dan Schiller). Michael Rock and Susan Sellers 2 × 4. Jonathan Barnbrook. Redundant technology initiative. Power conditions. The global erosion of the public sphere (Edward S. Herman). Global media and democracy (Robert W. McChesney). Cult of the new eve (Critical Art Ensemble). Working conditions. Working conditions (Walter van der Crujisen). Net_condition the website (Tom Fürstner). Partners. Biographies. Credits. Colophon, acknowledgements.

Codes, Systems, and Graphical Models. Edited by Brian Marcus and Joachim Rosenthal. Springer-Verlag, New York. (2001). 504 pages. $89.95, DM 198.00, sFr 171.00, GBP 68.50.

Contents:

Foreword. Preface. Part 1. Overviews. An introduction to the analysis of iterative coding systems (Tom Richardson and Rüdiger Urbanke). Connections between linear systems and convolutional codes (Joachim Rosenthal). Multi-dimensional symbolic dynamical systems (Klaus Schmidt). Part 2. Codes on graphs. Linear-congruence constructions of low-density parity-check codes (J. Bond, S. Hui and H. Schmidt). On the effective weights of pseudocodewords for codes defined on graphs with cycles (G. David Forney, Jr., Ralf Koetter, Frank R. Kschischang and Alex Reznik). Evaluation of Gallager codes for short block length and high rate applications (David J.C. MacKay and Matthew C. Davey). Two small Gallager codes (David J.C. MacKay and Matthew C. Davey). Mildly non-linear codes (Alan Parks). Capacity-achieving sequences (M.A. Shokrollahi). Hypertrellis: A generalization of trellis and factor graph (Wai Ho Mow). Part 3. Decoding techniques. BSC thresholds for code ensembles based on "typical pairs" decoding (Srinivas Aji, Hui Jin, Aamod Khadekar, David J.C. MacKay and Robert J. McEliece). Properties of the tailbiting BCJR decoder (John B. Anderson and Kemal E. Tepe). Iterative decoding of tail-biting trellises and connections with symbolic dynamics (G. David Forney, Jr., Frank R. Kschischang, Brian Marcus and Selim Tuncel). Algorithms for decoding and interpolation (Margreet Kuijper). An algebraic description of iterative decoding schemes (Elke Offer and Emina Soljanin). Recursive construction of Gröbner bases for the solution of polynomial congruences (Henry O'Keeffe and Patrick Fitzpatrick). On iterative decoding of cycle codes of graphs (Gilles Zémor). Part 4. Convolutional codes and codes over rings. Convolutional codes over finite Abelian groups: Some basic results (Fabio Fagnani and Sandro Zampieri). Symbolic dynamics and convolutional codes (Bruce Kitchens). Linear codes and their duals over artinian rings (Thomas Mittelholzer). Unit mem-

ory convolutional codes with maximum distance (Roxana Smarandache). Basic properties of multidimensional convolutional codes (Paul Weiner) Part 5. Symbolic dynamics and automata theory. Length distributions and regular sequences (Frédérique Bassino, Marie-Pierre Béal and Dominique Perrin). Handelman's theorem on polynomials with positive multiples (Valerio de Angelis and Selim Tuncel). Topological dynamics of cellular automata (Petr Kůrka). A spanning tree invariant for Markov shifts (Douglas Lind and Selim Tuncel). List of workshop participants.

Advanced Mean Field Methods: Theory and Practice. Edited by Manfred Opper and David Saad. The MIT Press, Cambridge, MA. (2001). 273 pages. $40.00.
Contents:

Series foreword. Foreword. Contributors. Acknowledgments. 1. Introduction (Manfred Opper and David Saad). 2. From naive mean field theory to the TAP equations (Manfred Opper and Ole Winther). 3. An idiosyncratic journey beyond mean field theory (Jonathan S. Yedidia). 4. Mean field theory for graphical models (Hilbert J. Kappen and Wim J. Wiegerinck). 5. The TAP approach to intensive and extensive connectivity systems (Yoshiyuki Kabashima and David Saad). 6. TAP for parity check error correcting codes (David Saad, Yoshiyuki Kabashima and Renato Vicente). 7. Adaptive TAP equations (Manfred Opper and Ole Winther). 8. Mean-field theory of learning: From dynamics to statics (K.Y. Michael Wong, S. Li and Peixun Luo). 9. Saddle-point methods for intractable graphical models (Fernando J. Pineda, Cheryl Resch and I-Jeng Wang). 10. Tutorial on variational approximation methods (Tommi S. Jaakkola). 11. Graphical models and variational methods (Zoubin Ghahramani and Matthew J. Beal). 12. Some examples of recursive variational approximations for Bayesian inference (K. Humphreys and D.M. Titterington). 13. Tractable approximate belief propagation (David Barber). 14. The attenuated max-product algorithm (Brendan J. Frey and Ralf Koetter). 15. Comparing the mean field method and belief propagation for approximate inference in MRFs (Yair Weiss). 16. Information geometry of α-projection in mean field approximation (Shun-ichi Amari, Shiro Ikeda and Hidetoshi Shimokawa). 17. Information geometry of mean-field approximation (Toshiyuki Tanaka).

Mathematical Logic for Computer Science, Second Edition. By Mordechai Ben-Ari. Springer-Verlag, London. (2001). 304 pages. $39.00, DM 79.00, sFr 70.00, GBP 24.50.
Contents:

Preface. 1. Introduction. 2. Propositional calculus: Formulas, models, tableaux. 3. Propositional calculus: Deductive systems. 4. Propositional calculus: Resolution and BDDs. 5. Predicate calculus: Formulas, models, tableaux. 6. Predicate calculus: Deductive systems. 7. Predicate calculus: Resolution. 8. Logic programming. 9. Programs: Semantics and verification. 10. Programs: Formal specification with Z. 11. Temporal logic: Formulas, models, tableaux. 12. Temporal logic: Deduction and applications. A. Set theory. B. Further reading. Bibliograpy. Index of symbols. Index.

Computer Graphics through Key Mathematics. By Huw Jones. Springer-Verlag, London. (2001). 343 pages. $39.95, DM 79.90. sFr 70.50, GBP 24.50.
Contents:

Preface. 1. The processes of computer graphics. 2. Numbers, counting and measuring. 3. Coordinates and dimension: Representations of space and colour. 4. Functions and transformations: Ways of manipulating space. 5. Form from function: Analysis of shapes. 6. Matrices: Tools for manipulating space. 7. Vectors: Descriptions of spatial relationships. 8. Geometric modelling and fractals: Building descriptions of objects. 9. Splines: Generation of curves and surfaces. 10. Drawing and rendering: How to create pictures. Suggestions for further reading. Index.

Theoretical Numerical Analysis: A Functional Analysis Framework. By Kendall Atkinson and Weimin Han. Springer-Verlag, New York. (2001). 450 pages. $59.95, DM 139.00, sFr 120.00, GBP 48.00.
Contents:

Series preface. Preface. 1. Linear spaces. 2. Linear operators on normed spaces. 3. Approximation theory. 4. Nonlinear equations and their solution by iteration. 5. Finite difference method. 6. Sobolev spaces. 7. Variational formulations of elliptic boundary value problems. 8. The Galerkin method and its variants. 9. Finite element analysis. 10. Elliptic variational inequalities and their numerical approximations. 11. Numerical solution of Fredholm integral equations of the second kind. 12. Boundary integral equations. References. Index.

Medical Care Output and Productivity. Edited by David M. Cutler and Ernst R. Berndt. The University of Chicago Press, Chicago. (2001). 611 pages. $80.00.
Contents:

Prefatory note. Introduction (David M. Cutler and Ernst R. Berndt). I. Conceptual issues in medical care prices and productivity. 1. What's different about health? Human repair and car repair in national accounts and in national health accounts (Jack E. Triplett); Comment (Zvi Griliches). 2. Theoretical foundations of medical cost-effectiveness analysis: Implications for the measurement of benefits and costs of medical interventions (David Meltzer); Comment (Douglas L. Cocks). 3. Medical care output and productivity in the nonprofit sector (Tomas Philipson and Darius Lakdawalla); Comment (Richard G. Frank). 4. Price indexes for medical care

goods and services: An overview of measurement issues (Ernst R. Berndt, David M. Cutler, Richard G. Frank, Zvi Griliches, Joseph P. Newhouse and Jack E. Triplett); Comment (Brent R. Moulton). II. Current state of measurement. 5. Medical care in the consumer price index (Ina Kay Ford and Daniel H. Ginsburg); Comment (Joseph P. Newhouse). 6. Health care output and prices in the producer price index (Dennis Fixler and Mitchell Ginsburg); Comment (Joseph P. Newhouse). 7. National health accounts/national income and product accounts reconciliation: Hospital care and physician services (Arthur Sensenig and Ernest Wilcox); Comment (Haiden A. Huskamp). III. Recent developments. 8. Pricing heart attack treatments (David M. Cutler, Mark McClellan, Joseph P. Newhouse and Dahlia Remler); Comment (Frank C. Wykoff). 9. Trends in heart attack treatment and outcomes, 1975–1995: Literature review and synthesis (Paul Heidenreich and Mark McClellan). 10. Measuring the value of cataract surgery (Irving Shapiro, Matthew D. Shapiro and David W. Wilcox). 11. Hedonic analysis of arthritis drugs (Iain M. Cockburn and Aslam H. Anis); Comment (J. Steven Landefeld). 12. Treatment price indexes for acute phase major depression (Ernst R. Berndt, Susan H. Busch and Richard G. Frank); Comment (Darrel A. Regier). IV. Extensions of the frontier. 13. The value of reductions in child injury mortality in the United States (Sherry Glied); Comment (James A. Schuttinga). 14. Patient welfare and patient compliance: An empirical framework for measuring the benefits from pharmaceutical innovation (Paul Ellickson, Scott Stern and Manuel Trajtenberg); Comment (Jonathan Skinner). 15. The allocation of publicly funded biomedical research (Frank R. Lichtenberg). Contributors. Author index. Subject index.

A Dictionary of Language, Second Edition. By David Crystal. The University of Chicago Press, Chicago. (2001). 390 pages. $17.00, £11.50.
Contents:

Preface. Conventions. Dictionary (A–Z). Index of languages. Illustrations acknowledgments.

Shaping Science with Rhetoric: The Cases of Dobzhansky, Schrödinger, and Wilson. By Leah Ceccarelli. The University of Chicago Press, Chicago. (2001). 204 pages. $55.00, £35.00 (cloth); $20.00, $13.00 (paper).
Contents:

Preface. 1. Inspiring interdisciplinarity. I. Theodosius Dobzhansky's *Genetics and the Origin of Species*. 2. The initiator of the evolutionary synthesis: Historians and scientist weigh in. 3. A text rhetorically designed to unite competing fields. II. Erwin Schrödinger's *What is Life? The Physical Aspect of the Living Cell*. 4. The "Uncle Tom's Cabin" of the molecular biology revolution: Assessing the place of a text in history. 5. A text rhetorically designed to negotiate different interests and beliefs. III. Edward O. Wilson's *Consilience: The Unity of Knowledge*. 6. The controversy over sociobiology: Scholars offer conflicting explanations. 7. A text rhetorically designed to fuel interdisciplinary hostilities. IV. Speaking to multiple audiences. 8. The genre. 9. Contributions to four ongoing conversations. Bibliography. Index.

Monetary Policy Rules. Edited by John B. Taylor. National Bureau of Economic Research and the University of Chicago Press, Chicago. (1999). 447 pages. $70.00, £49.00.
Contents:

Acknowledgments. Introduction (John B. Taylor). 1. Performance of operational policy rules in an estimated semiclassical structural model (Bennett T. McCallum and Edward Nelson); Comment (Mark Gertler). 2. Interest rate rules in an estimated sticky price model (Julio J. Rotemberg and Michael Woodford); Comment (Martin Feldstein). 3. Policy rules for open economics (Laurence Ball); Comment (Thomas J. Sargent). 4. Forward-looking rules for monetary policy (Nicoletta Batini and Andrew G. Haldane); Comment (Donald L. Kohn). 5. Policy rules for inflation targeting (Glenn D. Rudebusch and Lars E.O. Svensson); Comment (Frederic S. Mishkin); Comment (James H. Stock). 6. Robustness of simple monetary policy rules under model uncertainty (Andrew Levin, Volker Wieland and John C. Williams); Comment (Lawrence J. Christiano and Christopher J. Gust). 7. A historical analysis of monetary policy rules (John B. Taylor); Comment (Richard H. Clarida). 8. What should the monetary authority do when prices are sticky? (Robert G. King and Alexander L. Wolman); Comment (Benjamin M. Friedman). 9. Rethinking the role of NAIRU in monetary policy: Implications of model formulation and uncertainty (Arturo Estrella and Frederic S. Mishkin); Comment (Robert E. Hall). Contributors. Author index. Subject index.

Foundations of Computational Mathematics. Edited by Ronald A. DeVore, Arieh Iserles and Endre Süli. Cambridge University Press, Cambridge, U.K. (2001). 400 pages. $49.95.
Contents:

Preface. Singularities and computation of minimizers for variational problems (J.M. Ball). Adaptive finite element methods for flow problems (R. Becker, M. Braack and R. Rannacher). Newton's method and some complexity aspects of the zero-finding problem (J.-P. Dedieu). Kronecker's smart, little black boxes (M. Giusti and J. Heintz). Numerical analysis in Lie groups (A. Iserles). Feasibility control in nonlinear optimization (M. Marazzi and J. Nocedal). Six lectures on the geometric integration of ODEs (R.I. McLachlan and G.R. Quispel). When are integration and discrepancy tractable? (E. Novak and H. Woźniakowski). Moving frames—In geometry, algebra, computer vision, and numerical analysis (P.J. Olver). Harmonic map flows and image processing (G. Sapiro). Statistics from computations (H. Sigurgeirsson and A.M. Stuart). Simulation of stochastic processes and applications (D. Talay). Real-time numerical solution to Duncan-Mortensen-Zakai equation (S.-T. Yau and S.S.-T. Yau).

Rational Points on Curves over Finite Fields: Theory and Applications. By Harald Niederreiter and Chaoping Xing. Cambridge University Press, Cambridge, U.K. (2001). 245 pages. $39.95.
Contents:

Preface. 1. Background on function fields. 2. Class field theory. 3. Explicit function fields. 4. Function fields with many rational places. 5. Asymptotic results. 6. Applications to algebraic coding theory. 7. Applications to cryptography. 8. Applications to low-discrepancy sequences. A. Curves and their function fields. Bibliography. Index.

Quantum Computing. By Mika Hirvensalo. Springer-Verlag, Berlin. (2001). 190 pages. $44.95, DM 89.77, sFr 79.18, GBP 31.00.
Contents:

Preface. 1. Introduction. 2. Devices for computation. 3. Fast factorization. 4. Finding the hidden subgroup. 5. Grover's search algorithm. 6. Complexity lower bounds for quantum circuits. 7. Appendix A: Quantum physics. 8. Appendix B: Mathematical background. References. Index.

Soft Computing: New Trends and Applications. By L. Fortuna, G. Rizzotto, M. Lavorgna, G. Nunnari, M. G. Xibilia and R. Caponetto. Springer-Verlag, London. (2001). 267 pages. $49.95, DM 106.89, sFr 94.16, GBP 29.50 (CD-ROM included).
Contents:

Series editors' foreword. Preface. 1. Introduction. 2. Fuzzy logic. 3. Fuzzy control. 4. Artificial neural networks. 5. Neural networks for modeling and controlling dynamical systems. 6. Evolutionary optimization algorithm. 7. Cellular neural networks. 8. Complex dynamics and cellular neural networks. 9. Neuro-fuzzy networks. 10. Fuzzy cellular neural networks. 11. Fuzzy systems optimization by means of genetic algorithms. 12. Neuro-fuzzy strategies for monitoring urban traffic noise. 13. Modeling and control of a robot for picking citrus fruit. 14. Modeling and control of RTP systems. 15. A neural network to predict air pollution in industrial areas. 16. Conclusions. Index.

Modeling Dynamic Climate Systems. By Walter A. Robinson. Springer-Verlag, New York. (2001). 210 pages. $59.95, DM 160.39, sFr 138.03, GBP 55.50 (CD-ROM included).
Contents:

Series preface. Preface. Acknowledgments. 1. Two paradigms of stability. 2. Models of the global climate. 3. Thermodynamics and dynamics in the vertical. 4. Dynamics of horizontal motion. 5. Dynamics of circulation and vorticity. 6. Dynamical models of the climate. 7. Climate variations. Appendix. Index.

Essential Java 3D fast: Developing 3D Graphics Applications in Java. By Ian Palmer. Springer-Verlag, London. (2001). 279 pages. $29.95, DM 64.09, sFr 56.71, GBP 17.00.
Contents:

1. Introduction. 2. Our first Java 3D program. 3. Creating shapes. 4. Lighting and appearance. 5. Groups and transformations. 6. Animation. 7. Interaction and behaviour. 8. Advanced topics. 9. Duck shoot! Appendix A. Source code. Appendix B. Example data files. References. Index.

Best Approximation in Inner Product Spaces. By Frank Deutsch. Springer-Verlag, New York. (2001). 338 pages. $69.95, DM 160.39, sFr 138.03, GBP 55.50.
Contents:

Preface. 1. Inner product spaces. 2. Best approximation. 3. Existence and uniqueness of best approximations. 4. Characterization of best approximations. 5. The metric projection. 6. Bounded linear functionals and best approximation from hyperplanes and half-spaces. 7. Error of approximation. 8. Generalized solutions of linear equations. 9. The method of alternating projections. 10. Constrained interpolation from a convex set. 11. Interpolation and approximation. 12. Convexity of Chebyshev sets. Appendix 1. Zorn's lemma. Appendix 2. Every Hilbert space is $\ell_2(I)$. References. Index.

Cost-Benefit Analysis: Legal, Economic, and Philosophical Perspectives. Edited by Matthew D. Adler and Eric A. Posner. The University of Chicago Press, Chicago. (2001). 351 pages. $39.00 (cloth); $20.00 (paper).
Contents:

Introduction (Matthew D. Adler and Eric A. Posner). Risk equity (W. Kip Viscusi). State and federal regulatory reform: A comparative analysis (Robert W. Hahn). Why is cost-benefit analysis so controversial? (Robert H. Frank). The discipline of cost-benefit analysis (Amartya Sen). Cost-benefit analysis and population (John Broome). The stupidity of the cost-benefit standard (Henry S. Richardson). The costs of tragedy: Some moral limits of cost-benefit analysis (Martha C. Nussbaum). On justifying cost-benefit analysis (Lewis A. Kornhauser). Cognition and cost-benefit analysis (Cass R. Sunstein). Implementing cost-benefit analysis when preferences are distorted (Matthew D. Adler and Eric A. Posner). A comment on the conference on cost-benefit analysis (Gary S. Becker). Cost-benefit analysis: Definition, justification, and comment on conference papers (Richard A. Posner). Index.

Data Engineering: Fuzzy Mathematics in Systems Theory and Data Analysis. By Olaf Wolkenhauer. John Wiley & Sons, New York. (2001). 263 pages. $74.95.
Contents:

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Logic and the Art of Memory: The Quest for a Universal Language. By Paolo Rossi; translated with an Introduction by Stephen Clucas. The University of Chicago Press, Chicago. (2000). 333 pages. $32.00.
Contents:

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The MIT Guide to Teaching Web Site Design. By Edward Barrett, Deborah A. Levinson and Suzana Lisanti. The MIT Press, Cambridge, MA. (2001). 102 pages. $22.95.
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Contents:

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Contents:

Foreword. Preface: Why you should care. A brief history of hackerdom. The cathedral and the bazaar. Homesteading the noosphere. The magic cauldron. Revenge of the hackers. Afterword: Beyond software? Appendix A: How to become a hacker. Appendix B: Statistical trends in the fetchmail project's growth. Notes, bibliography, and acknowledgments.

Extremal Combinatorics: With Applications in Computer Science. By Stasys Jukna. Springer-Verlag, Berlin. (2001). 375 pages. $44.95, sFr 79.18, GBP 31.00.
Contents:

Preface. Prolog: What this book is about. Notation. Part I. The classics. 1. Counting. 2. Advanced counting. 3. The principle of inclusion and exclusion. 4. The pigeonhole principle. 5. Systems of distinct representatives. 6. Colorings. Part II. Extremal set theory. 7. Sunflowers. 8. Intersecting families. 9. Chains and antichains. 10. Blocking sets and the duality. 11. Density and universality. 12. Witness sets and isolation. 13. Designs. Part III. The linear algebra method. 15. Orthogonality and rank arguments. 16. Span programs. Part IV. The probabilistic method. 17. Basic tools. 18. Counting sieve. 19. The Lovász seive. 20. Linearity of expectation. 21. The deletion method. 22. The second moment method. 23. The entropy function. 24. Random walks.

25. Randomized algorithms. 26. Derandomization. Part V. Fragments of Ramsey theory. 27. Ramsey's theorem. 28. Ramseyan theorems for numbers. 29. The Hales-Jewett theorem. Epilog: What next? References. Name index. Subject index.

An Introduction to Maple V. By Jack-Michel Cornil and Philippe Testud. Springer-Verlag, Berlin. (2001). 470 pages. $36.00, sFr 56.71, GBP 22.00.
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Preface. 1. What MAPLE can do for you. 2. Introduction. 3. Arithmetic. 4. Real numbers, complex numbers. 5. Two-dimensional graphics. 6. Equations and inequalities. 7. Limits and derivatives. 8. Truncated series expansions. 9. Differential equations. 10. Integration and summation. 11. Three-dimensional graphics. 12. Polynomials with rational coefficients. 13. Polynomials with irrational coefficients. 14. Rational functions. 15. Construction of vectors and of matrices. 16. Vector analysis and matrix calculus. 17. Systems of linear equations. 18. Normalization of matrices. 19. Orthogonality. 20. Vector analysis. 21. The MAPLE objects. 22. Working more cleverly with the subexpressions. 23. Programming loops and branches. 24. Programming: Functions and procedures. 25. The mathematical functions. 26. Maple environment in Windows. Index.

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Contents:

1. Why use ColdFusion? 2. Setting up a development system. 3. Counting visitors to a web site. 4. HTML for ColdFusion. 5. Using SQL. 6. Key ColdFusion tags. 7. Forms and formatting. 8. Looping and branching. 9. Email and the internet. 10. CF tags—File functions. 11. Using ColdFusion variables. 12. ColdFusion functions. 13. Custom tags. 14. Using cookies to track users. 15. Securing web pages. 16. Scheduling tasks. 17. The ColdFusion fast web site. 18. Additional resources. Index.

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Contents:

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Algorithmics for Hard Problems: Introduction to Combinatorial Optimization, Randomization, Approximization, and Heuristics. By Juraj Hromkovič. Springer-Verlag, Berlin. (2001). 492 pages. $44.95, sFr 88.81, GBP 34.50.
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Preface. 1. Introduction. 2. Elementary fundamentals. 3. Deterministic approaches. 4. Approximation algorithms. 5. Randomized algorithms. 6. Heuristics. 7. A guide to solving hard problems. References. Index.