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In accordance with their general policy, the Editors welcome particularly contributions which will be of interest both to mathematicians and to scientists or engineers. Authors will receive galley proof only. The author's institution will be requested to pay a publication charge of $30 per page which, if honored, entitles the author to 100 free reprints. Detailed instructions will be sent with galley proofs.

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SUGGESTIONS CONCERNING THE PREPARATION OF MANUSCRIPTS FOR THE QUARTERLY OF APPLIED MATHEMATICS

The editors will appreciate the authors' cooperation in taking note of the following directions for the preparation of manuscripts. These directions have been drawn up with a view toward eliminating unnecessary correspondence, avoiding the return of papers for changes, and reducing the charges made for "author's corrections."

Manuscripts: Manuscripts should be typewritten double-spaced on one side only. Marginal instructions to the typesetter should be written in pencil to distinguish them clearly from the body of the text. The author should keep a complete copy.

The papers should be submitted in final form. Only typographical errors should be corrected in proof; composition charges for any major deviations from the manuscript will be passed on to the author.

Titles: The title should be brief but express adequately the subject of the paper. The name and initials of the author should be written as he/she prefers; all titles and degrees or honors will be omitted. The name of the organization with which the author is associated should be given in a separate line following his/her name.

Mathematical Work: As far as possible, formulas should be typewritten; Greek letters and other symbols not available on the average typewriter should be inserted using either instant lettering or by careful insertion in ink. Manuscripts containing pencilled material other than marginal instructions to the typesetter will not be accepted.

The difference between capital and lower-case letters should be clearly shown; care should be taken to avoid confusion between zero (0) and the letter O, between the numeral one (1), the letter l and the prime ($'$), between alpha and a, kappa and k, mu and u, nu and v, eta and n.

The level of subscripts, exponents, subscripts to subscripts, and exponents to exponents should be clearly indicated.

Single embellishments over individual letters are allowed; the only embellishment allowed above groups of letters is the overbar.

Double embellishments are not allowed. These may be replaced by superscripts following the symbols.

Complicated exponents and subscripts should be avoided. Any complicated expression that recurs frequently should be represented by a special symbol.

For exponentials with lengthy or complicated exponents the symbol exp should be used, particularly if such exponentials appear in the body of the text. Thus,

$$\exp[(a^2 + b^2)^{1/2}] \text{ is preferable to } e^{[a^2+b^2]^{1/2}}.$$

Fractions in the body of the text and fractions occurring in the numerators or denominators of fractions should be written with the solidus. Thus,

$$\frac{\cos(x/2b)}{\cos(a/2b)} \text{ is preferable to } \frac{\cos\frac{x}{2b}}{\cos\frac{a}{2b}}.$$

In many instances the use of negative exponents permits saving of space. Thus,

$$\int u^{-1}\sin u\,du \text{ is preferable to } \int \frac{\sin u}{u}\,du.$$

Whereas the intended grouping of symbols in handwritten formulas can be made clear by slight variations in spacing, this procedure is not acceptable in typeset formulas. To avoid misunderstanding, the order of symbols should therefore be carefully considered. Thus,

$$(a + bx)\cos t \text{ is preferable to } \cos t(a + bx).$$

Figures: Figures should be drawn in black ink with clean, unbroken lines; do not use ball point pen. The paper should be of a nonabsorbant quality so that the ink does not spread and produce fuzzy lines. If the figures are intended for reduction, they should be drawn with heavy enough lines so that they do not become flimsy at the desired reduction. The notation should be of professional quality and in proportion for the expected reduction size. Figures that are unsuitable for reproduction will be returned to the author for redrawing. Legends accompanying figures should be written on a separate sheet.

Bibliography: References should be grouped together in a Bibliography at the end of the manuscript. References in text to the Bibliography should be made by numerals between square brackets.

The following examples show the desired arrangements: (*for books*—S. Timoshenko, *Strength of Materials*, vol. 2, Macmillan and Co., London, 1931, p. 237; *for periodicals*—Lord Rayleigh, *On the flow of viscous liquids, especially in three dimensions*, Phil. Mag. (5) 36, 354–372 (1893)). Note that the number of the series is not separated by commas from the name of the periodical or the number of the volume.

Authors' initials should precede their names rather than follow them.

In quoted titles of books or papers, capital letters should be used only where the language requires this. Thus, *On the flow of viscous fluids* is preferable to *On the Flow of Viscous Fluids*, but the corresponding German title would have to be rendered as *Über die Stromung zaher Flüssigkeiten.*

Titles of books or papers should be quoted in the original language (with an English translation added in parentheses, if this seems desirable), but only English abbreviations should be used for bibliographical details such as ed., vol., no., chap., p.

Footnotes: As far as possible, footnotes should be avoided. Footnotes containing mathematical formulas are not acceptable.

Abbreviations: Much space can be saved by the use of standard abbreviations such as Eq., Eqs., Fig., Sec., Art., etc. These should be used, however, only if they are followed by a reference number. Thus, "Eq. (25)" is acceptable but not "the preceding Eq." Moreover, if any one of these terms occurs as the first word of a sentence, it should be spelled out.

Special abbreviations should be avoided. Thus "boundary conditions" should always be spelled out and not be abbreviated as "b.c." even if this special abbreviation is defined somewhere in the text.

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0033-569X(199806)56;2;1-3

Harmonic Analysis and Discrete Potential Theory. Edited by Massimo A. Picardello, Plenum Press, 1992, viii+302 pp., $75.00

This book contains the proceedings of a congress held in Frascati (ROME) on 1–10 July, 1991. It contains 24 papers.

Real Reductive Groups II. By Nolan R. Wallach, Academic Press, 1992, xiv+454 pp., $105.00

This is volume 132-II in the series Pure and Applied Mathematics. It is the second volume in the treatise Real Reductive Groups, and is intended to be read as a continuation of the first volume. The chapter headings are: 10. Intertwining operators; 11. Completion of admissible (g, K)-modules; 12. The theory of the leading term; 13. The Harish-Chandra Plancherel theorem; 14. Abstract representation theory; 15. The Whittaker Plancherel theorem.

Mathematical Journals—An Annotated Guide. By Diana F. Liang, The Scarecro Press, Metuchen, N.J., 1992, x+246 pp., $29.50

This book assembles a group of approximately 350 active English-language journal titles. For each journal it provides a detailed history of the journal publication, editor, publisher, date founded, frequency, price, microfilm availability, circulation, where indexed or abstracted, and the presumed target reader.

Handbook of Differential Equations. By Daniel Zwillinger, Academic Press, 1992, xx+78^{-} pp., $54.95

This is the second edition of a book first published in 1989. It is a compilation of the most important and widely applicable methods for solving and approximating ordinary and partial differential equations. The book is divided into four parts. The first part is a collection of transformations and general ideas about differential equations. The second part is a collection of exact analytical solution techniques for differential equations. For nearly every technique the following are given: the types of equations to which the method is applicable; the idea behind the method; the procedure for carrying it out; an example; cautionary remarks; references. The third part deals with approximate analytical solution techniques, in a format similar to the above for exact methods. The fourth part is concerned with the most important methods for finding numerical solutions. When possible, short FORTRAN programs have been given.

The Self-Avoiding Walk. By Neal Madras and Gordon Slade, Birkhäuser, Boston, 1993, xiv+425 pp., $64.50

This is a volume in the series Probability and Its Applications. A self-avoiding walk is a path on a lattice that does not visit the same site more than once. The primary purpose of this book is to give an account of the current state of the art as far as rigorous results are concerned. A second goal is to discuss some of the applications of the self-avoiding walk in physics and chemistry, and to describe some of the nonrigorous methods used in those fields. The model originated several decades ago in the study of long-chain molecules and has become an important model in statistical physics, as it exhibits critical behaviour analogous to that occurring in the Ising model. The authors have tried to make the book as self-contained as possible, and it should be accessible to graduate students in mathematics, physics and chemistry. Chapter headings: 1. Introduction; 2. Scaling, polymers and spins; 3. Some combinatorial bounds; 4. Decay of the two-point function; 5. The lace expansion; 6. Above four dimensions; 7. Pattern theorems; 8. Polygons, slabs, bridges and knots; 9. Analysis of Monte Carlo methods; 10. Related topics.

Morphometric Tools for Landmark Data—Geometry and Biology. By Fred L. Bookstein, Cambridge University Press, 1991, xvii+435 pp., $89.95

Morphometrics is the statistical study of biological shape and shape change. Its richest data are landmarks, points such as "the bridge of the nose" that have biological names as well as geometric locations. This book is a systematic survey of landmark data. The methods combine conventional multivariate statistical analysis with themes from plane and solid geometry and from biomathematics. The book begins with a review of the fundamentals of landmark and a discussion of the thin-plate spline. This is followed by a critical survey of conventional multivariate morphometrics. Coordinates for representing landmark configurations without reference to size are then introduced, and their multivariate status explored. The second half of the book is a survey of the most general and powerful new methods for describing the results of these analyses for both simple and complex landmark configurations. Using diagrams linked to biological interpretation, the text explains and interrelates the geometric features by which morphometric findings can be rendered legible. New tools are demonstrated using a variety of data sets from evolutionary biology, micropaleontology, neuroanatomy, and craniofacial growth.

Attractors for Semigroups and Evolution Equations. By Olga Ladyzhenskaya, Cambridge University Press, 1991, xi+73 pp., $39.95

This is a volume in the series Lezione Lincee, which are lectures given under the auspices of the Accademia Nazionale dei Lincee. The seven chapters are divided into two groups, attractors for the semigroups of operators, and semigroups generated by evolution equations.

Advances in Input-Output Analysis–Technology, Planning, and Development. Edited by William Peterson, Oxford University Press, 1991, x+246 pp., $49.95

The chapters in this volume have been selected by the Program Committee from among papers presented at the Eighth International Conference on Input-Output Techniques, held in August 1986 in Sapporo, Japan. The volume includes applications to both market and socialist economies, to economies at very different levels of development, and to problems of social policy as well as to problems that are more conventionally economic in nature. The seventeen papers are divided into seven groups: 1. Theoretical developments; 2. The compilation of input-output tables; 3. Input-output and the analysis of technical progress; 4. Input-output and the analysis of socialist economies; 5. Input-output and developing countries; 6. The analysis of social and environmental problems.

Recent Advances in Global Optimization. Edited by Christodoulos A. Floudas and Panos M. Pardalos, Princeton University Press, 1992, x+633 pp., $69.50 (cloth), $39.50 (paper)

This is a volume in the Princeton Series in Computer Science. The majority of the 27 papers in the volume were presented at a conference held at Princeton University, May 10–11, 1991. The subject is concerned with the characterization and computation of global minima or maxima of unconstrained nonlinear functions and constrained nonlinear problems. Applications include structural optimization, engineering design, VLSI chip design and database problems, image processing, computational chemistry, molecular biology, nuclear and mechanical design, chemical engineering design and control, economics of scale, fixed charges, allocation and location problems, quadratic assignment, integer programming and related graph problems (e.g., maximum clique problems), etc. From the complexity point of view global optimization problems belong to the class of NP-hard problems.

Scientific Computing with Automatic Result Verification. Edited by E. Adams and U. Kulisch, Academic Press, 1993, x+612 pp.

This is volume 189 in the series Mathematics in Science and Engineering. It presents a collection of papers on recent progress in the development and applications of numerical algorithms with automatic result verification. The papers address mainly the following areas: 1. The development of computer languages and programming environments supporting the totally error-controlled computational determination of enclosures (an enclosure consists of upper and lower bounds of the solution); 2. Corresponding software, predominantly for problems involving the differentiation or the integration of functions or for differential or integral equations; 3. In the context of scientific computing the mathematical simulation of selected major real world problems, in conjunction with parallel numerical treatments by means of software with or without total error control. There is an introduction by the editors in addition to the eighteen papers.

Intersections of Random Walks. By Gregory F. Lawler, Birkhäuser, 1991, 219 pp., $49.50

This is a volume in the series Probability and Its Applications. Its subject is the discussion of problems dealing with the non-intersection of paths of random walks. These problems include: harmonic measure, which can be considered as a problem of nonintersection of a random walk with a fixed set; the probability that the paths of independent random walks do not intersect; and self-avoiding walks, i.e., random walks that have no self-intersections. The prerequisite is a standard measure-theoretic course in probability including martingales and Brownian motion. Chapter headings: 1. Simple random walks; 2. Harmonic measures; 3. Intersection probabilities; 4. Four dimensions; 5. Two and three dimensions; 6. Self-avoiding walks; 7. Loop-erased walk.

Nonlinear systems. By P. G. Drazin, Cambridge University Press, 1992, xiii+317 pp., $74.95 (cloth), $29.95 (paper)

This is a volume in the series Cambridge Texts in Applied Mathematics. It is an introduction to the theories of bifurcation and chaos. It treats the solution of nonlinear equations, especially difference and ordinary differential equations, as the parameter varies. Chapter headings: 1. Introduction; 2. Classification of bifurcations of equilibrium points; 3. Difference equations; 4. Some special topics; 5. Ordinary differential equations; 6. Second-order autonomous differential systems; 7. Forced oscillations; 8. Chaos.

Curve and Surface Fitting with Splines. By Paul Dierckx, Oxford University Press, 1993, xvi+285 pp., $53.00

This is a volume in the series Oxford Science Publications. It describes the algorithms and mathematical fundamentals for data fitting with tensor product splines, with the development of the software package FITPACK for curve and surface fitting serving as a framework. It is assumed that the functional form of the approximation is immaterial and not dictated by the physical context of the application. It is also supposed that all data points are available at the time the approximation is to be determined, and that there are no measurement errors. The emphasis is therefore on methods that smooth rather than interpolate data. Table of contents: Part I: Spline functions; 1. Univariate splines; 2. Bivariate splines; Part II: Curve fitting; 3. Curve fitting: an introduction; 4. Least-squares spline curve fitting; 5. Smoothing spline curve fitting; 6. More smoothing spline curves; 7. Fitting with convexity constraints; Part III: Surface fitting; 8. Surface fitting: an introduction; 9. Scattered data surface fitting; 10. Mesh data surface fitting; 11. More scattered data smoothing; 12. More mesh data smoothing; Part IV:FITPACK; 13. Available software.

Dirac Structures and Integrability of Nonlinear Evolution Equations. By Irene Dorfman, John Wiley and Sons, 1993, vii+176 pp., $75.00

This is a volume in the series Nonlinear Science: Theory and Applications. It investigates general Hamiltonian structures and their role in integrability. It presents a rigorous algebraic approach that is independent of the specific properties of the phase space of the system. Some important classes of infinite-dimensional Hamiltonian structures are described in terms of differential geometry, theory of Lie algebras and group representation theory; corresponding integrable systems are considered. The presentation is self-contained, but some basic knowledge of classical mechanics and nonlinear phenomena is desirable for the reader. Chapter headings: 1. Introduction; 2. Algebraic theory of Dirac structures; 3. Nijenhuis operators and pairs of Dirac structures; 4. The complex of formal variational calculus; 5. Local Hamiltonian operators and evolution equations related to them; 6. Local symplectic operators and evolution equations related to them; 7. τ-scheme of integrability.

Contributions to Stochastics. Edited by N. Venugopal, John Wiley and Sons, 1992, ix+216 pp.

This collection is a memorial volume dedicated to the mathematical statistician Kandula Nagabhushanam, whose principal contributions were in the field of non-stationary stochastic processes, particularly as related to spectral analysis. This volume contains fifteen papers on time series, regression, and related subjects in mathematical statistics.

Unstructured Scientific Computation on Scalable Multiprocessors. Edited by Piyush Mehrotra, Joel Saltz, and Robert Voigt, The MIT Press, 1992, xvi+405 pp., $39.95

This book reflects the proceedings of a workshop held by ICASE in October 1990 in Nags Head, North Carolina, which addresses issues raised when implementing unstructured and dynamically varying algorithms on computer architectures which can be scaled to the teraflop performance range. Problems addressed in the twenty papers include: methods to effectively map fluids and structural mechanics codes that employ unstructured and/or adaptive meshes; scalable algorithms for problems in sparse linear algebra; scalable tools and compilers designed to handle irregular scientific computations; mapping methods for adaptive fast multiple methods; and parallelized grid generation and problem partitioning.

Rational Curves and Surfaces–Applications to CAD. By J. C. Fiorot and P. Jeannin, translated by M. C. Harrison, John Wiley and Sons, 1992

This book is a contribution to the study of rational curves and surfaces from the viewpoint of their computer treatment in CAD, CAGD, and CAM. The authors determine rational curves and surfaces via Bernstein Polynomials, through the knowledge of a certain number of so-called massic vectors, which are weighted points or vectors in the space in which the curve or surface is embedded. The authors exploit this new description computationally and geometrically and develop techniques for finding massic nets and polygons, particularly for conics and quadrics, as well as techniques for creating shapes determined by massic nets. The material in this book can be described as algorithmic geometry, with the main tools taken from projective and affine geometries. It is illustrated with numerous examples and figures.

Supermanifolds. By Bryce DeWitt, Cambridge University Press, 1992, xviii+407 pp., $95.00 (cloth), $37.95 (paper)

This is the second edition of the book first published in 1984. The purpose of the book remains to provide theoretical physicists with an easily accessible account of supermanifolds and super Lie groups, mathematical structures required since the discovery of Bose-Fermi supersymmetry. For this edition, an account of the work by E. Witten and by L. Alvarez-Gaumé on supersymmetry, Morse theory and the Atiyah-Singer index theorem has been added, as promised in the first edition. The discussion of the Feynmann functional integral is also greatly expanded. There are six chapters: 1. Analysis over supernumbers: 2. Supermanifolds; 3. Super Lie groups: general theory; 4. Super Lie groups: examples; 5. Selected applications of supermanifold theory; 6. Applications involving topology.

The Interacting Boson-Fermion Model. By F. Iachello and P. Van Isacker, Cambridge University Press, 1991, x+312 pp., $75.00

This is a volume in the series Cambridge Monographs on Mathematical Physics. The interacting boson model has emerged in the last fifteen years as a unified framework for the description of the collective properties of nuclei with an even number of protons and neutrons. However, more than half of the nuclear species have an odd number of protons and/or neutrons. In these nuclei there is an interplay between collective (bosonic) and single-particle (fermionic) degrees of freedom. The interacting boson model was extended to cover these situations by introducing the interacting boson-fermion model, which, with its applications, is described in this monograph, the second in a series of three. It has two aspects, an algebraic (group-theoretic) aspect and a numerical one, the former describing the coupling of bosons and fermions, a situation which is far more complex than in the case of even-even nuclei and, for this reason, it is described in greater detail.

Rings, Fields and Groups–An Introduction to Abstract Algebra. By R. B. J. T. Allenby and Edward Arnold, A Division of Hodder and Stoughton, 1991, xxvi+383 pp., $29.95

This is the second edition of a text first published in 1983. For this edition, a brief account of Galois theory, and hints/outline solutions to many of the 800 or so exercises have been added. It remains an introduction, suitable for introductory college courses in abstract algebra.

Categories, Types, and Structures. By Andrea Asperti and Giuseppe Longo, The MIT Press, 1991, xi+306 pp., $32.50

This volume in the series Foundation of Computing is subtitled "An introduction to category theory for the working computer scientist". The main methodological connection between programming language theory and category theory is the fact that both theories are essentially theories of functions. A crucial point is that the categorical notion of morphism generalizes the set-theoretical description of function in a very broad sense, which provides a unified understanding of various aspects of the theory of programs. This book has two parts. The first part aims at a self-contained introduction to general category theory, and the second part at a categorical understanding of the mathematical structures that constituted, in the last twenty years or so, the theoretical background of relevant areas of language design.

Semantics of Programming Languages–Structures and Techniques. By Carl A. Gunter, The MIT Press, 1992, xviii+419 pp., $37.50

This is a volume in the series Foundations of Computing. It expounds the basic motivations and philosophy underlying the applications of semantic techniques in programming language theory. There is an emphasis on the structures used in semantics and the techniques that have been developed for relating various approaches to the semantics of programming languages, particularly for languages with higher-order functions. Type systems are the central organizational theme of the discussion. The book is designed as a text for upper-level and graduate-level students from all areas of computer science.

Numerical Methods, Software, and Analysis. By John Rice, Academic Press, 1993, xiv+720 pp.

This is the second edition of a text first published in 1983. It is organized into three parts. Part I (chapters 1–3) is background and preliminary material; Part II (chapters 4–11) is the core of the course, presenting the principal methods and ideas of numerical computation; Part III (chapters 12–15) contains relevant but independent material about software engineering and performance evaluation. The IMSL library and ACM algorithms are discussed systematically. The text also uses the PROTRAN system introduced by IMSL, which provides mathematical problem-solving statements substantially easing the use of library routines and improving programming reliability. The scope of the book is apparent by its chapter headings: 1. Mathematics and computer science background; 2. Numerical software; 3. Errors, round-off, and stability; 4. Models and formulas for numerical computation; 5. Interpolation; 6. Matrices and linear equations; 7. Differentiation and integration; 8. Nonlinear equations; 9. Ordinary differential equations; 10. Partial differential equations; 11. Approximation of functions and data; 12. Software practice, costs, and engineering; 13. Software performance evaluation; 14. The validation of numerical computations; 15. PROTRAN.

Potential Theory. Edited by Masanori Kishi, Walter de Gruyter, 1992, ix+403 pp., $98.00

This volume collects twelve invited lectures and twenty-six selected contributions from short communications delivered at an international conference on potential theory held in Nagoya (Japan), August 30–September 4, 1990. They include various topics from classical to nonlinear potential theory, as well as applications to partial differential equations and other branches of mathematics.

Semantic Networks in Artificial Intelligence. Edited by Fritz Lehmann, Pergamon Press, 1992, 758 pp., $69.00

This is volume 24 in the International Series in Modern Applied Mathematics and Computer Science. It starts with an introduction to the field by the editor, followed by eight invited research summaries of the major research families in the field, then 25 independent articles on various semantic network subjects. The eight research summaries cover Roger Schank's Conceptual Dependency theory and its descendants, John Sowa's Conceptual Graphs, the line of semantic network research initiated by Lenhart Schubert now called ECO, the large KL-ONE family, Path-based Inheritance theories originally derived from Scott Fahlman's NETL, the Preference Semantics system developed by Yorick Wilks to understand sentences and texts, the Procedural Semantics Network system developed at the University of Toronto, and the Semantic Network Processing System first developed by Stuart Shapiro. The remaining 25 articles make diverse use of discrete mathematics to represent and process the conceptual structures underlying language and thought.

Linear Network Optimization–Algorithms and Codes. By Dimitri P. Bertsekas, The MIT Press, 1991, xi+359 pp., $39.95

It is one of the purposes of this book to provide a modern and up-to-date synthesis of old and new algorithms for linear network flow problems, concentrating on algorithms that have proved most successful in practice or otherwise embody important methodological ideas and emphasising two fundamental ideas: duality and iterative cost improvement methods. Algorithms are grouped in three categories: (i) primal cost improvement methods, including simplex methods, which iteratively improve the primal cost by moving flow around simple cycles; (ii) dual ascent methods, which iteratively improve the dual cost by changing the prices of a subset of nodes by equal amounts, and (iii) auction algorithms, which try to improve the dual cost approximately along coordinate directions.

Nonlinear Electromechanical Couplings. By G. A. Maugin, J. Pouget, R. Drout, and B. Collet, John Wiley and Sons, 1992, xvii+394 pp.

This is a volume in the series Nonlinear Waves and Applications. It is concerned with (i) the formulation of nonlinear models of electrodeformable continua, essentially of the solid type, but with some slight incursion into the realm of fluid solutions (presenting a deformable solid-like microstructure), and (ii) the applied mathematical study of the numerous effects that are given birth in this framework. For the basics, it draws heavily on modern continuum mechanics (including both geometrical and physical nonlinearities) and the electrodynamics of continua, cast in this modern framework which allows one to deal with electric fields of high intensity. The book aims to offer a general overview including weak and strong nonlinearities and the possible reinforcement, attenuation or compensation of these by other properties: dissipation, dispersion and, to a lesser degree, forcing. It is organized into eight chapters and two appendices: 1. Introduction to nonlinear phenomena; 2. Continuum and discrete models of electrodeformable continua; 3. Quasi-linear dynamics of electroelasticity; 4. Nonlinear dynamics of electroelasticity; 5. Solitons in elastic ferroelectrics; 6. Nonlinear dissipative effects in electrodeformable solids; 7. Phonons echoes in piezoelectric powders; 8. Electromechanical couplings in solutions of macromolecules. The appendices treat Landau's theory of phase transitions, and high-order material coefficients.

Mathematical Analysis, 2nd edition. By S. C. Malik and Savita Arora, John Wiley and Sons, 1992, xii+903 pp.

This book is intended to serve as a text for a first course in real analysis, providing a development that is well motivated, rigorous and at the same time not too pedantic. Most of the hard theorems which are either omitted or treated heuristically in many texts have been proved with care. The book, in fact, tries to fill a gap and make the transition from elementary calculus to real analysis as smooth as possible. Chapter headings: 1. Real numbers; 2. Open sets, closed sets and countable sets; 3. Real sequences; 4. Infinite series; 5. and 6. Functions of a single variable I and II; 7. Applications of Taylor's Theorem; 8. Functions; 9. The Riemann integral; 10. The Riemann-Stieltjes integral; 11. Improper integrals; 12. Uniform convergence; 13. Power series; 14. Fourier series; 15. Functions of several variables; 16. Implicit functions; 18. and 19. Integration on R^2 and R^3; 20. The Lebesgue integral.

Advances in Parallel Algorithms. Edited by Lydia Kronsjö and Dean Shumsheruddin, John Wiley and Sons, 1992, xiv+481 pp.

This Halsted Press book surveys current developments across the broad and rapidly expanding field of parallel algorithms and parallel software. Interesting developments have taken place in neural networks, parallel simulation, genetic algorithms, branch-and-bound algorithms and dynamic programming. The material in the 15 chapters of this book can be roughly divided into four sections: software paradigms, general methods, applications, and computational complexity.

Probability. By Jim Pitman, Springer-Verlag, 1993, xi+559 pp., $49.00

This is a volume in the series Springer Texts in Statistics. It is a text for a one-semester course, aimed at students who have done a year of calculus. It contains more than the usual number of examples worked out in detail. The style is deliberately informal. Chapter headings: 1. Introduction; 2. Repeated trials and sampling; 3. Random variables; 4. Continuous distributions; 5. Continuous joint distributions; 6. Dependence. There is a detailed (12 page) summary of results on distributions and there are sample midterm and final examinations with solutions.

Aggregation–Production Functions and Related Topics, collected papers of Franklin M. Fisher. Edited by John Monz, The MIT Press, 1993, $45.00

The papers in this volume concern chiefly the aggregation of production functions. The central question asked is whether and under what circumstances the technological relationships of a diverse economy (or industry or firm) can be summarized in a fairly simple manner. There are 11 papers, dating from 1965 to 1984, and a new introduction by the author.

Differential Equations with Applications in Mathematical Physics. Edited by W. F. Ames, E. M. Harrell II, and J. V. Herod, Academic Press, 1993, ix+350 pp.

This is volume 192 in the series Mathematics in Science and Engineering. In it, the authors have selected several articles on the forefront of research in differential equations and mathematical physics. Some of the articles are closely tied to work presented at an international conference held in March 1992 at the Georgia Institute of Technology. Other articles were submitted and selected later. The topics on which the 27 papers focus are: nonlinear differential and integral equations, semiclassical quantum mechanics, spectral and scattering theory, and symmetry analysis.

Bénard Cells and Taylor Vortices. By E. L. Koschmieder, Cambridge University Press, 1993, x+337 pp., $64.95

This is a volume in the series Cambridge Monographs on Mechanics and Applied Mathematics. It describes the research that has been done on the problems of Bénard convection—as well as its modern offspring, the Rayleigh-Bénard problem—and Taylor vortices. Bénard convection differs from Rayleigh-Bénard convection in that Bénard convection is characterized by the presence of surface tension and hexagonal cells, while Rayleigh-Bénard convection is characterized by buoyancy and parallel rolls. Toroidal vortices characterize Taylor vortex flow. Convection and Taylor vortex flow deal with the consequences of the presence of infinitesimal disturbances in an unstable fluid layer. The author describes the progress that has been made in the theoretical and experimental investigation of the nonlinear problems and outlines the remaining basic problems. Chapter headings: Part I: Bénard convection and Rayleigh-Bénard convection; 1. Bénard's experiments; 2. Linear theory of Rayleigh-Bénard convection; 3. Theory of surface-tension-driven Bénard convection; 4. Surface-tension-driven Bénard convection experiments; 5. Linear Rayleigh-Bénard convection experiments; 6. Supercritical Rayleigh-Bénard convection experiments; 7. Nonlinear theory of Rayleigh-Bénard convection; 8. Miscellaneous topics; Part II: Taylor vortex flow; 9. Circular Couette flow; 10. Rayleigh's stability criterion; 11. Taylor's work; 12. Torque measurements; 13. Supercritical Taylor vortex experiments; 14. Nonlinear theory of Taylor vortices; 15. Miscellaneous topics.