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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."

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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(200009)58:3;1-D

Ecological Dynamics. By W. S. C. Gurney and R. M. Nisbet, Oxford University Press, 1998, xiii+335 pp., $39.95

This text provides a flexible introduction to ecological dynamics that is accessible to students with limited mathematical experience. It is divided into three parts. Part I, Methodologies and Techniques, defines the authors' modelling philosophy and introduces essential concepts for describing and analysing dynamical systems; Part II, Individuals to Ecosystems, is the core of the book and describes the formulation and analysis of models of individual organisms, populations, and ecosystems; Part III, Focus on Structure, which is targeted at the more advanced reader, introduces models of "structured" and spatially extended populations. About 25% of the book is devoted to case studies, where models are used to address ecological questions. The authors' preferred solution for most models is to use a purpose-built suite of program templates (SOLVER), in which a given model is specified by a short segment of PASCAL code. A copy of the PC implementation of SOLVER may be downloaded from a given website.

The Scientific Letters and Papers of James Clerk Maxwell, Volume II, 1862–1873. Edited by P. M. Harman, Cambridge University Press, 1995, xxx+999 pp., $285.00

This magnificent second volume documents the period of Maxwell's maturity. The manuscripts in it provide substantive evidence of the process by which the brilliant innovations of his scientific youth were transformed into the Maxwellian physics transmitted to posterity. They cover the years when Maxwell wrote the classic works on molecular theory and field physics, including the Treatise on Electricity and Magnetism. The volume begins with his first referee reports for the Royal Society and ends shortly before the inauguration of the Cavendish Laboratory in Cambridge. Only a small number of the manuscripts reproduced here have received prior publication in other than truncated form. The volume prints all of Maxwell's extant autograph letters from the period covered. Letters received by Maxwell are reproduced on a selective basis, but all those from his major correspondents (Stokes, Lord Kelvin, Tait) are reproduced complete. The items are numbered 197 to 490, consecutively from the beginning of volume I. In general, these volumes contain autographed letters, papers, reviews, abstracts of contributed and published papers, and contributions to discussions that were omitted from the memorial edition of his *Scientific Papers* published by Cambridge University Press in 1890.

Level Set Methods and Fast Marching Methods. By J. A. Sethian, Cambridge University Press, 1999, xx+378 pp., $74.95 (hardback), $29.95 (paperback)

This is a volume in the series Cambridge Monographs on Applied and Computational Mathematics. It is subtitled: *Evolving interfaces in computational geometry, fluid mechanics, computer vision, and materials science* and is the second edition of a monograph first published in 1996 under the title *Level Set Methods.* The 22 chapters of the book are divided into 4 parts: I. Equations of Motion for Moving Interfaces (Chapter 1, which discusses the underlying boundary value and initial value partial differential equations perspective on moving interfaces and the advantages of these approaches); II. Theory and Algorithms (Chapter 2 gives a general statement of the problem of a moving surface and discusses the mathematical theory of curve/surface motion; Chapters 4, 5, and 6 present numerical results that lead up to the fast marching and level set techniques); III. Efficiency, Adaptivity, and Extensions (the 7 chapters provide complete details on state-of-the-art fast marching and level set algorithms); IV. Applications (8 chapters: geometry; grid generation; image enhancement and noise removal; computer vision: shape detection and recognition; combustion, solidification, fluids, and electromigration; computational geometry and computer-aided design; optimality and first arrivals; etching and deposition in microchip fabrication.

Experimental Stochastics. By Otto Moeschlin, Eugen Grycko, Claudia Pohl, and Frank Steinert, translated by Robert Johns, Springer-Verlag, 1998, xv+206 pp., with a CD-ROM

This (electronic) monograph consists of four parts. In Part 1, Artificial Randomness, random number generators are examined and evaluated by chi square and time series tests. Generation of binomial Poisson, geometric, exponential, Fermi-Dirac, Erlang, and chi-square distributions is considered. Part 2, Stochastic Models, deals with modeling complex sequences of random events to gain experience and insight: Buffon experiments, service systems, kinetic gas theory, kinetic dynamics and equilibrium. Part 3, Stochastic Processes, concerns the generation of trajectories of stochastic processes and the use of more advanced stochastic methods to estimate certain macro-quantities of a given stochastic model: Markov chains, birth and death processes, diffusion processes, control of traffic lights. Part 4, Evaluation of Statistical Procedures, addresses the problem of testing statistical procedures: experimental evaluation, Neymann Pearson lemma, Wald sequential test, Bayesian point estimation, Hartigan procedures. The accompanying CD-ROM includes a number of animations, experiments, flowcharts, and video clips, as well as the text from the book, displayed in cascade windows.

Martingale Methods in Financial Modelling. By Marek Musiela and Marek Rutkowsi, Springer-Verlag, 1997, xii+512 pp., $79.95

This is volume 36 in the series Applications of Mathematics: Stochastic Modelling and Applied Probability. Due to its origin in courses given at the University of New South Wales in Sydney and the Warsaw University of Technology, the book starts at a very elementary mathematical level and does not assume any prior knowledge of financial markets. Later, it develops into a text that requires some familiarity with concepts of stochastic calculus, the basic relevant notions and results of which are collected in the appendix. The first part of the book deals with the more classical concepts and results of arbitrage pricing theory. The second part is devoted to interest modelling and is less standard. Special emphasis is put on recently-developed models built upon market interest rates. Table of contents: Part I. Spot and futures markets. 1. An introduction; 2. Financial derivatives; 3. The Cox-Ross-Rubinstein model; 4. Finite security markets; 5. Market imperfections; 6. The Black-Scholes model; 7. Foreign market derivatives; 8. American options; 9. Exotic options; 10. Continuous-time security markets; Part II. Fixed income markets. 11. Interest rates and related contracts; 12. Models of the short-term rate; 13. Models of instantaneous forward rates; 14. Models of bond prices and LIBOR rates; 15. Option valuation in Gaussian models; 16. Swap derivatives; 17. Cross-currency derivatives. Part III. Appendices. There is a bibliography of close to 1000 items.

Classical Invariant Theory. By Peter J. Olver, Cambridge University Press, 1999, xxi+280 pp.

This is volume 44 in the series London University Student Texts. It is written in a non-abstract manner and addressed to advanced undergraduate and graduate students. It concentrates on the study of binary forms (polynomials) in characteristic zero and uses analytical as well as algebraic tools to study invariants, symmetry, equivalence, and canonical forms. Innovations include the use of differential operators and the transform approach to the symbolic method, the extension of results to arbitrary functions, graphical methods for computing identities and Hilbert bases, complete systems of rationally and functionally independent covariates, the introduction of Lie group and Lie algebra methods, as well as a new geometrical theory of moving frames and applications. It includes many exercises and historical details, and complete proofs of the fundamental theorems.

Modelling Extremal Events for Insurance and Finance. By Paul Embrechts, Claudia Kluppelberg, and Thomas Mikosch, Springer-Verlag, 1997, xv+645 pp.

This is volume 33 in the series Applications of Mathematics: Stochastic Modelling and Applied Probability. It is designed to be an introduction to the mathematical and statistical theory underyling Extreme Value Theory (EVT), written with a broad audience of potential users in mind, the main target group being, however, the financial industry, where EVT is a relatively new tool compared to, for instance, amongst hydrologists and reliability engineers, where for a long time EVT has belonged to the standard toolkit. It presents a comprehensive treatment of extreme value methodology. Both probabilistic and statistical methods are discussed in detail, with such topics as ruin theory for large claim models, fluctuation theory of sums of random variables, extremes in time series models, point process methods, statistical estimation of quantiles and tail probabilities. Among applications are large insurance claims, large fluctuations in financial data, stock market shocks, risk management, and reinsurance products. Chapter headings: 1. Risk theory; 2. Fluctuations of sums; 3. Fluctuations of maxima; 4. Fluctuations of upper-order statistics; 5. An approach to extremes via point processes; 6. Statistical methods for extremal events; 7. Time series analysis for heavy-tailed processes; 8. Special topics (the extremal index; a large claim index; when and how ruin occurs); 9. Perpetuities and autoregressive conditionally heteroscedastic-ARCH-processes; on the longest success-run; some results on large deviations; reinsurance treaties; stable processes; self-similarity. There is an appendix with background material and a bibliography with 646 items.

Dynamic Multilevel Methods and the Numerical Solution of Turbulence. By Thierry Dubois, Francois Jauberteau, and Roger Temam, Cambridge University Press, 1999, xix+289 pp., $59.95

This book describes the implementation of multilevel methods in a dynamical context, with application to the numerical simulation of turbulent flows. The general ideas for the algorithms presented stem from dynamical systems theory and are based on the decomposition of the unknown function into two or more arrays corresponding to different scales in the Fourier space. The first two chapters are surveys of background topics. In the following chapters, the methods are applied to the simulation of homogeneous isotropic turbulent flows as well as turbulent channel flows. Chapter headings: 1. The Navier-Stokes equations and their mathematical background; 2. The physics of turbulent flows; 3. Computational methods for the direct simulation of turbulence; 4. Direct numerical simulation versus turbulence modelling; 5. Long-time behaviour: attractors and their approximation; 6. Separation of scales in turbulence; 7. Numerical analysis of multilevel methods; 8. Dynamic multilevel methodologies; 9. Computational implementation of the dynamic multilevel methods; 10. Numerical results. There is a bibliography of about 150 items.

A Practical Guide to Heavy Tails—Statistical Techniques and Applications. Edited by Robert J. Adler, Raisa E. Feldman, and Murad S. Taqqu, Birkhäuser, 1998, vii+533 pp.

The 25 papers in this volume, which grew from a December 1995 ONR sponsored workshop in Santa Barbara, are divided into seven groups: 1. Applications (5 papers), 2. Time series (6 papers), 3. Heavy-tail estimation (2 papers), 4. Regression (2 papers), 5. Signal processing (2 papers), 6. Model structures (3 papers), 7. Numerical procedures (4 papers). The papers are designed to be easily accessible to readers in different disciplines. The 1994 monograph on *Stable Non-Gaussian Random Processes* by Samorodnitsky and Taqqu provides a theoretical background to the papers in this volume, which is, however, directed to the general practitioner and is primarily concerned with techniques for data analysis.