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Rafael DE LA LLAVE, Linda R. PETZOLD, Jens LORENZ, (Editors). — **Dynamics of algorithms.** — The IMA volumes in mathematics and its applications, vol. 118. — Un vol. relié, 16,5 × 24,5, de IX, 136 p. — ISBN 0-387-98920-X. — Prix : DM 120.00. — Springer, New York, 2000.

The articles collected in this volume represent the contributions presented at the IMA Workshop on Dynamics of Algorithms which took place in November 1997. The workshop was an integral part of the 1997 to 1998 IMA Program on Emerging Applications of Dynamical Systems. The interaction between algorithms and dynamical systems is mutually beneficial since dynamical methods can be used to study algorithms which are applied repeatedly. Convergence and asymptotic rates are indeed dynamical properties. Likewise, the study of dynamical systems benefits enormously from having efficient algorithms to compute dynamical objects.

Equations aux différences finies, équations fonctionnelles

Themistocles M. RASSIAS. — **Functional equations and inequalities.** — Mathematics and its applications, vol. 518. — Un vol. relié, 16.5 × 24,5, de XI, 336 p. — ISBN 0-7923-6484-8. — Prix : Dfl. 275.00. — Kluwer Academic Publishers, Dordrecht, 2000.

This volume provides an extensive study of some of the most important topics of current interest in functional equations and inequalities. Subjects dealt with include: a Pythagorean functional equation, a functional definition of trigonometric functions, the functional equation of the square root spiral, a conditional Cauchy functional equation, an iterative functional equation, the Hille-type functional equation, the polynomial-like iterative functional equations, a qualitative study of Lobachevsky's complex functional equations, functional inequalities in special classes of functions, replicativity and function spaces, normal distributions, some difference equations, finite sum decompositions of functions, the problem of expressibility in some extensions of free groups, Alexandrov problem and mappings which preserve distances, etc.

Approximations et développements en série

George A. ANASTASSIOU, Sorin G. GAL. — **Approximation theory : moduli of continuity and global smoothness preservation.** — Un vol. relié, 16 × 24, de XI, 525 p. — ISBN 0-8176-4151-3. — Prix : SFr. 158.00. — Birkhäuser, Boston, 2000.

This monograph, in two parts, is an intensive and comprehensive study of the computational aspects of the moduli of smoothness and the Global Smoothness Preservation Property (GSPP). Key features include : Systematic and extensive study of the computation of moduli of continuity and GSPP, presented for the first time in the book literature ; substantial motivation and examples for key results ; extensive applications of moduli of smoothness and GSPP concepts to approximation theory, probability theory, numerical and functional analysis ; GSPP methods to benefit engineers in computer-aided geometric design ; bibliography and index.

Analyse de Fourier, analyse harmonique abstraite

Tian-Xia HE, (Editor). — **Wavelet analysis and multiresolution methods.** — Proceedings of the conference held at the University of Illinois at Urbana-Champaign, Illinois. — Lecture notes in pure and applied mathematics, vol. 212. — Un vol. broché, 17.5 × 25,5, de VIII, 382 p. — ISBN 0-8247-0417-7. — Prix : US$ 185.00. — Marcel Dekker, New York, 2000.

This volume contains a selection of papers presented at the Wavelet Analysis and Multiresolution Methods Session of the American Mathematical Society Meeting held recently at the University of Illinois at Urbana-Champaign. Offering self-contained papers that include an

introduction to a major topic in wavelet analysis, recent research results, analysis of key historical developments, and a detailed list of references, *Wavelet Analysis and Multiresolution Methods* explores the construction, analysis, computation, and application of multiwavelets, scaling vectors, nonhomogeneous refinement, multivariate orthogonal and biorthogonal wavelets, and much more.

Yves MEYER, Ronald COIFMAN. — **Wavelets: Calderón-Zygmund and multilinear operators.** — Translated by David Salinger. — Cambridge studies in advanced mathematics, vol. 48. — Un vol. broché, 15×22,5, de XIX, 314 p. — ISBN 0-521-79473-0. — Prix: £24.95 (relié: £42.50). — Cambridge University Press, Cambridge, 1997.

Now in paperback, this remains one of the classic expositions of the theory of wavelets from two of the subject's leading experts. In this volume the theory of paradifferential operators and the Cauchy kernel on Lipschitz curves are discussed with the emphasis firmly on their connection with wavelets bases. Sparse matrix representations of these operators can be given in terms of wavelet bases which have important applications in image processing and numerical analysis. The method is now widely studied and can be used to tackle a wide variety of problems arising in science and engineering. Put simply, this is an essential purchase for anyone researching the theory of wavelets.

Transformations intégrales, calcul opérationnel

Joel L. SCHIFF. — **The Laplace transform: theory and applications.** — Undergraduate texts in mathematics. — Un vol. relié, 16,5×24,5, de XIV, 233 p. — ISBN 0-387-98698-7. — Prix: DM 79.00. — Springer, New York, 1999.

The Laplace transform is an extremely versatile technique for solving differential equations, both ordinary and partial. It can also be used to solve difference equations. Even the Dirac delta function, which is normally covered in a heuristic fashion is given a completely justifiable treatment in the context of the Riemann-Stieltjes integral, yet at a level an undergraduate student can appreciate. When it comes to the deepest part of the theory, the complex inversion formula, knowledge of poles, residues, and contour integration of meromorphic functions is required. To this end, an entire chapter is devoted to the fundamentals of complex analysis.

Equations intégrales

Ricardo ESTRADA, Ram P. KANWAL. — **Singular integral equations.** — Un vol. relié, 16×24, de XII, 427 p. — ISBN 0-8176-4085-1. — Prix: SFr. 118.00. — Birkhäuser, Boston, 2000.

This work focuses exclusively on the distributional solutions of singular integral equations, progressing from basic concepts of the classical theory to the more difficult two-dimensional problems. Key features of the work include: systematic progression from basic classical concepts to more advanced distribution type solutions; applications to a variety of fields, including potential theory, mechanics, fluid dynamics, wave scattering, statistics, and population dynamics; extensive examples, illustrations, and problem sets; good bibliography and index.

Analyse fonctionnelle

J. CUNTZ, S. ECHTERHOFF, (Editors). — **C*-algebras: proceedings of the SFB-Workshop on C*-Algebras, Münster, Germany, March 8-12, Germany.** — Un vol. broché, 15,5×23,5, de XI, 272 p. — ISBN 3-540-67562-0. — Prix: DM 129.00. — Springer, Berlin, 2000.

This book represents the refereed proceedings of the SFB-Workshop on C*-Algebras which was held at Münster in March 1999. It contains articles by some of the best researchers on the