Analyse fonctionnelle

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

subject of C*-algebras about recent developments in the field of C*-algebra theory and its connections to harmonic analysis and noncommutative geometry. Among the contributions there are several excellent surveys and overviews and some original articles covering areas like the classification of C*-algebras, K-theory, exact C*-algebras and exact groups, Cuntz-Krieger-Pimsner algebras, group C*-algebras, the Baum-Connes conjecture and others.

Do Ngoc DIEP. — **Methods of noncommutative geometry for group C*-algebra.** — Chapman & Hall/CRC research notes in mathematics series, vol. 416. — Un vol. broché, 15,5×23,5, de 351 p. — ISBN 1-58488-019-8. — Prix: £40.99. — Chapman & Hall/CRC, Boca Raton, 2000.

This volume provides an introduction to and presents research on the study of group C*-algebras, suitable for all levels of readers – from graduate students to professional researchers. The introduction provides the essential features of the methods used. In Part I, the author offers an elementary overview – using concrete examples – of using K-homology, BFD-functors, and KK-functors to describe group C*-algebras. In Part II, he uses advanced ideas and methods from representation theory, differential geometry, and KK-theory, to explain two primary tools used to study group C*-algebras: multidimensional quantization and construction of the index of group C*-algebras through the orbit method.

J.R. GILES. — **Introduction to the analysis of normed linear spaces.** — Australian Mathematical Society lecture series, vol. 13. — Un vol. broché, 15×23, de XIV, 277 p. — ISBN 0-521-65375-4. — Prix: £19.95. — Cambridge, Cambridge University Press, 2000.

This text is a basic course in functional analysis for senior undergraduate and beginning postgraduate students. It aims at providing some insight into basic abstract analysis which is now the contextual language of much modern mathematics. Although it is assumed that the student will have familiarity with elementary real and complex analysis and linear algebra and have studied a course in the analysis of metric spaces, knowledge of integration theory or general topology is not required. The theme of this text concerns structural properties of normed linear spaces in general, especially associated with dual spaces and continuous linear operators on normed linear spaces.

Henryk HUDZIK, Leszek SKRZYPCZAK, (Editors). — **Function spaces: the fifth conference.** — Proceedings of the conference at Poznań, Poland. — Lecture notes in pure and applied mathematics, vol. 213. — Un vol. broché, 17,5×25,5, de XIV, 511 p. — ISBN 0-8247-0419-3. — Prix: US$185.00. — Marcel Dekker, New York, 2000.

Compiling the latest research from the International Conference "Function Spaces V" held in Poznań, Poland, this exhaustive reference presents key advances, modern applications, and important analyses of function spaces. Two special sections recognize the memory, contributions, and influences of Wladyslaw Orlicz and Genadii Lozanowskii. Advancing the study of general theory, particular spaces, topological and geometrical properties, order structures, and the interpolation of operators, *Function Spaces* covers the geometry of Banach spaces, focusing on Orlicz spaces with applications to fixed point theory, Banach lattices and the rearrangement of invariant spaces, Sobolev type embeddings and entropy numbers, Hardy inequalities and dyadic Hardy spaces, singular integral and pseudo-differential operators, and much more.

Kjeld B. LAURSEN, Michael M. NEUMANN. — **An introduction to local spectral theory.** — Oxford science publications. — London Mathematical Society monographs. New series, vol. 20. — Un vol. relié, 16×24, de XII, 591 p. — ISBN 0-19-852381-5. — Prix: £115.00. — Clarendon Press, Oxford, 2000.

From the preface: In this monograph, we develop, rather systematically and thoroughly, the local spectral theory for bounded linear operators on Banach spaces. It should be made clear

from the outset that this book concentrates on the case of single operators... Our concentration on single operator theory means that the techniques employed can, essentially, be developed within the framework of the book itself. Of course, it is not possible to make a presentation such as this one entirely self-contained...; it has been our intention to make this exiting area of operator theory accessible to newcomers and graduate students of mathematics with an ordinary background in analysis. This has influenced both our assumptions about the reader's background knowledge, and also the high degree of detail included in the proofs throughout the book. The modest prerequisites from functional analysis and operator theory that we required are collected in the appendix...

Théorie des opérateurs

V.M. ADAMYAN, I. GOHBERG, M. GORBACHUK, V. GORBACHUK, M.A. KAASHOEK, H. LANGER, G. POPOV, (Editors). — **Differential operators and related topics: proceedings of the Mark Krein International Conference on Operator Theory and Applications, Odessa, Ukraine, August 18-22, 1997, vol. 1.** — Operator theory, vol. 117. — Un vol. relié, 17×24, de IX, 420 p. — ISBN 3-7643-6287-1. — Prix: SFr. 198.00. — Birkhäuser, Basel, 2000.

This conference, which was dedicated to the 90th anniversary of the prominent mathematician Mark Krein focused on the main ideas, methods, results, and achievements of M.G. Krein. This first volume is devoted to the theory of differential operators and related topics. It opens with a description of the conference, biographical material and a number of survey papers about the work of M.G. Krein. The main part of the book consists of original research papers presenting the state of the art in the area of differential operators.

V.M. ADAMYAN, I. GOHBERG, M. GORBACHUK, V. GORBACHUK, M.A. KAASHOEK, H. LANGER, G. POPOV, (Editors). — **Operator theory and related topics: proceedings of the Mark Krein International Conference on Operator Theory and Applications, Odessa, Ukraine, August 18-22, 1997, vol. 2.** — Operator theory, vol. 118. — Un vol. relié, 17×24, de XXIV, 419 p. — ISBN 3-7643-6288-X. — Prix: SFr. 198.00. — Birkhäuser, Basel, 2000.

The present book is the second of the two volume proceedings of the Mark Krein International Conference on Operator Theory and Applications. It is devoted to operator theory and related topics. It opens with the bibliography of M.G. Krein and a number of survey papers about his work. The main part of the book consists of original research papers presenting the state of the art in operator theory and its applications. The two volumes will be of interest to a wide range of readership in pure and applied mathematics, physics and engineering sciences.

Jürgen APPELL, (Editor). — **Recent trends in nonlinear analysis: Festschrift dedicated to Alfonso Vignoli on the occasion of his sixtieth birthday.** — Progress in nonlinear differential equations and their applications, vol. 40. — Un vol. relié, 16×24, de 264 p. — ISBN 3-7643-6292-8. — Prix: SFr. 128.00. — Birkhäuser, Basel, 2000.

The book contains a collection of 21 original research papers which report on recent developments in various fields of nonlinear analysis. The collection covers a large variety of topics ranging from abstract fields such as algebraic topology, functional analysis, operator theory, spectral theory, analysis on manifolds, partial differential equations, boundary value problems, geometry of Banach spaces, measure theory, variational calculus, and integral equations, to more application-oriented fields like control theory, numerical analysis, mathematical physics, mathematical economy, and financial mathematics. This book is addressed to all specialists interested in nonlinear functional analysis and its applications.