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Peter GRABNER, Wolfgang WOESS, (Editors). — **Fractals in Graz 2001: analysis – dynamics – geometry – stochastics.** — Trends in mathematics. — Un vol. relié, 17×24, de xi, 162 p. — ISBN 3-7643-7006-8. — Prix: SFr. 98.00. — Birkhäuser, Basel, 2003.

The volume presents a multitude of different directions of active current research linked with the modern theory of fractal structures. All papers were written upon invitation by the editors. The book is addressed to mathematicians and scientists who are interested in any of the following topics: fractal dimensions, fractal energies, fractal groups, stochastic processes on fractals, self-similarity, spectra of random walks, tilings, analysis on fractals, dynamical systems. The readers will be introduced to the most recent results and problems on these subjects. Both researchers and graduate students will benefit from the clear expositions.

## ***Analyse de Fourier, analyse harmonique abstraite***

Antoni ZYGMUND. — **Trigonometric series.** — With a foreword by Robert Fefferman. — Third edition, volumes I and II combined. — Cambridge mathematical library. — Un vol. broché, 15×23, de xiii, 383 p. et vii, 364 p. — ISBN 0-521-89053-5. — Prix: £39.95. — Cambridge University Press, Cambridge, 2003.

A greatly enlarged second edition published by Cambridge in two volumes in 1959 took full account of developments in trigonometric series, Fourier series and related branches of pure mathematics since publication of the original edition. The two volumes are here bound together. Volume I, containing the completely rewritten material of the original work, deals with trigonometric series and Fourier series – auxiliary results: Fourier coefficients – elementary theorems on the convergence of  $S[f]$ ; summability of Fourier series; classes of functions and Fourier series; special trigonometric series; the absolute convergence of trigonometric series; complex methods in Fourier series; divergence of Fourier series; Riemann's theory of trigonometric series. Volume II provides much material previously unpublished in book form, and covers trigonometric interpolation; differentiation of series – generalized derivatives; interpolation of linear operation – more about Fourier coefficients; convergence and summability almost everywhere; complex methods; applications of the Littlewood-Paley function to Fourier series; Fourier integrals; a topic in multiple Fourier series.

## ***Analyse fonctionnelle***

Pere ARA, MARTIN MATHIEU. — **Local multipliers of  $C^*$ -algebras.** — Springer monographs in mathematics. — Un vol. relié, 16×24, de xii, 319 p. — ISBN 1-85233-237-9. — Prix: €86.95. — Springer, London, 2003.

The theme of this book is operator theory on  $C^*$ -algebras. The main novel tool employed is the concept of local multipliers. The book serves two purposes. The first part provides the reader with a thorough introduction to the theory of local multipliers. Only a minimal knowledge of algebra and analysis is required, as the prerequisites in both non-commutative ring theory and basic  $C^*$ -algebra theory are presented in the first chapter. In the second part, local multipliers are used to obtain a wealth of information on various classes of operators on  $C^*$ -algebras, including (groups of) automorphisms, derivations, elementary operators, Lie isomorphisms and Lie derivations, as well as others. Many of the results appear in print for the first time. The authors have made an effort to avoid intricate technicalities thus some of the results are not pushed to their utmost generality. Several open problems are discussed, and hints for further developments are given.

Dorothee HAROSKE, Thomas RUNST, Hans-Jürgen SCHMEISSER, (Editors). — **Function spaces, differential operators and nonlinear analysis: the Hans Triebel anniversary volume.** — Un vol. relié,  $17,5 \times 24$ , de XII, 474 p. — ISBN 3-7643-6935-3. — Prix: SFr. 138.00. — Birkhäuser, Basel, 2003.

This conference (International Conference “Function spaces, Differential Operators and Nonlinear Analysis” held in Teistungen, Thuringia / Germany, from June 28 to July 4, 2001, in honour of his 65<sup>th</sup> birthday) was a very special event because it celebrated Hans Triebel’s extraordinary impact on mathematical analysis. The development of the modern theory of function spaces in the last 30 years and its application to various branches in both pure and applied mathematics is deeply influenced by his lasting contributions. In a series of books Hans Triebel has given systematic treatments of the theory of function spaces from different points of view, thus revealing its interdependence with interpolation theory, harmonic analysis, partial differential equations, nonlinear operators, entropy, spectral theory and, most recently, analysis on fractals.

W. B. JOHNSON, J. LINDENSTRAUSS, (Editors). — **Handbook of the geometry of Banach spaces, volume 1.** — Un vol. relié,  $17,5 \times 24,5$ , de x, 1005 p. — ISBN 0-444-82842-7. — Prix: € 159.00. — Elsevier, Amsterdam, 2001.

The handbook presents an overview of most aspects of modern Banach space theory and its applications. The up-to-date surveys, authored by leading research workers in the area, are written to be accessible to a wide audience. In addition to presenting the state of the art of Banach space theory, the surveys discuss the relation of the subject with such areas as harmonic analysis, complex analysis, classical convexity, probability theory, operator theory, combinatorics, logic, geometric measure theory, and partial differential equations. The handbook begins with a chapter on basic concepts in Banach space theory which contains all the background needed for reading any other chapter in the handbook. Each of the twenty one articles in this volume after the basic concepts chapter is devoted to one specific direction of Banach space theory or its applications. Each article contains a motivated introduction as well as an exposition of the main results, methods and open problems in its specific direction. Most have an extensive bibliography. Many articles contain new proofs of known results as well as expositions of proofs which are hard to locate in the literature or are only outlined in the original research papers.

L. P. LEBEDEV, I. I. VOROVICH. — **Functional analysis in mechanics.** — Springer monographs in mathematics. — Un vol. relié,  $16 \times 24$ , de IX, 238 p. — ISBN 3-387-95519-4. — Prix: € 69.95. — Springer, Berlin, 2003.

This book covers functional analysis and its applications to continuum mechanics. The presentation is concise but complete, and is intended for readers in continuum mechanics who wish to understand the mathematical underpinnings of the discipline. Graduate students and researchers in mathematics, physics, and engineering wishing to find applications of functional analysis may find this text particularly useful. Detailed solutions of the exercises are provided in an appendix.

L. LEINDLER, F. SCHIPP, J. SZABADOS, (Editors). — **Functions, series, operators: Alexits Memorial Conference.** — Un vol. relié,  $17,5 \times 24$ , de 472 p. — ISBN 963-9453-005. — János Bolyai Mathematical Society, Budapest, 2002.

The János Bolyai Mathematical Society organized an International Conference *Functions, series, operators* in Budapest between August 9 and 13, 1999 to honor the hundredth anniversary of the birth of Professor George Alexits (1899-1978). 80 participants from 17 countries delivered 68 lectures in different fields of real and complex function theory, operators, approximation theory, functional analysis. The present volume contains papers meticulously selected

from the lectures presented during the conference. The first paper gives an account of the life of Alexits and his work in function theory (by F. Móricz and K. Tandori). It is followed by three invited papers (by Bl. Sendov, H. Triebel, S. Yano). These as well as the subsequent contributed papers were thoroughly refereed according to the strict standards of international periodicals. All contributed papers are original works not published elsewhere.

Vern PAULSEN. — **Completely bounded maps and operator algebras.** — Cambridge studies in advanced mathematics, vol. 78. — Un vol. relié, 16×24, de XII, 300 p. — ISBN 0-521-81669-6. — Prix: £ 47.50. — Cambridge University Press, Cambridge, 2003.

In this book the reader is provided with a tour of the principal results and ideas in the theories of completely positive maps, completely bounded maps, dilation theory, operator spaces, and operator algebras, together with some of their main applications. The author assumes only that the reader has a basic background in functional analysis and  $C^*$ -algebras, and the presentation is self-contained and paced appropriately for graduate students new to the subject. The book could be used as a text for a course or for independent reading; with this in mind, many exercises are included. Experts will also want this book for their library, since the author presents new and simpler proofs of some of the major results in the area, and many applications are also included.

## *Théorie des opérateurs*

Sergio ALBEVERIO, Michael DEMUTH, Elmar SCHROHE, Bert-Wolfgang SCHULZE, (Editors). — **Parabolicity, Volterra calculus, and conical singularities.** — A volume of *Advances in partial differential equations*. — Operator theory: advances and applications, vol. 138. — Un vol. relié, 17×24, de IX, 358 p. — ISBN 3-7643-6906-X. — Prix: SFr. 160.00. — Birkhäuser, Basel, 2003.

This volume highlights the analysis on noncompact and singular manifolds within the framework of the cone calculus with asymptotics. — *Contents*: Thomas Krainer: Volterra families of pseudodifferential operators. — Thomas Krainer: The calculus of Volterra Mellin pseudodifferential operators with operator-valued symbols. — Thomas Krainer and Bert-Wolfgang Schulze: On the inverse of parabolic systems of partial differential equations of general form in an infinite space-time cylinder. — Ingo Witt: On the factorization of meromorphic Mellin symbols. — David Kapanadze, Bert-Wolfgang Schulze, and Ingo Witt: Coordinate invariance of the cone algebra with asymptotics.

## *Calcul des variations*

Gianni DAL MASO, Franco TOMARELLI, (Editors). — **Variational methods for discontinuous structures.** — International Workshop at Villa Erba (Cernobio), Italy, July 2001. — Progress in nonlinear differential equations and their applications, vol. 51. — Un vol. relié, 16×24, de x, 185 p. — ISBN 3-7643-6913-2. — Birkhäuser, Basel, 2002.

This volume contains the proceedings of the International Workshop on Variational Methods for Discontinuous Structures, held at Villa Erba Antica (Cernobio), on the Lago di Como, July 4-6, 2001. Some of the talks were devoted to differential or variational modelling of image segmentation, occlusion and textures synthesizing in image analysis, variational description of micro-magnetic materials, dimension reduction and structured deformations in elasticity and plasticity, phase transitions, irrigation and drainage, evolution of crystalline shapes. In most cases theoretical and numerical analysis of these models were provided. Other talks were dedicated to specific problems of the calculus of variations: variational theory of weak or