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more advanced topics. Although the book will be a valuable reference work for experts in the field, it is mainly intended as a streamlined but detailed introduction for researchers and graduate students who wish to apply these methods in different areas.

Akihito UCHIYAMA. — **Hardy spaces on the Euclidean space.** — Springer monographs in mathematics. — Un vol. relié, 17×24, de XIII, 305 p. — ISBN 4-431-70319-5. — Prix: € 79.95. — Springer, Berlin, 2001.

Prof. Peter W. Jones says in his special contribution to this book that Uchiyama's decomposition of BMO functions is considered the Mount Everrest of Hardy space theory. This book is based on the draft, which the author Akihito Uchiyama had completed by 1990. It deals with the theory of real Hardy spaces on the $n$-dimensional Euclidean space. Here the author explains scrupulously some important results on Hardy spaces by real-variable methods, in particular, the atomic decomposition of elements in Hardy spaces and the author's constructive proof of the Fefferman-Stein decomposition of BMO functions into the sum of a bounded function and Riesz transforms of bounded functions.

## *Théorie des opérateurs*

Alexander A. BORICHEV, Nikolai K. NIKOLSKI, (Editors). — **Systems, approximation, singular integral operators, and related topics.** — International Workshop on Operator Theory and Applications, IWOTA 2000. — Operator theory: advances and applications, vol. 129. — Un vol. relié, 18×24, de XVIII, 527 p. — ISBN 3-7643-6645-1. — Prix: SFr. 228.00. — Birkhäuser, Basel, 2001.

This book is devoted to some topical problems and applications of operator theory and its interplay with modern complex analysis. It consists of 20 selected survey papers that represent updated (mainly plenary) addresses to the IWOTA 2000 Conference held at Bordeaux from June 13 to 16, 2000. The main subjects of the volume include: Spectral analysis of periodic differential operators and delay equations, stabilizing controllers, Fourier multipliers. – Multivariable operator theory, model theory, commutant lifting theorems, coisometric realizations. – Hankel operators and forms. – Operator algebras. – The Bellman function approach in singular integrals and harmonic analysis, singular integral operators and integral representations. – Approximation in holomorphic spaces. These subjects are unified by the common "operator theoretic approach" and the systematic use of modern function theory techniques.

Israel GOHBERG, Heinz LANGER, (Editors). — **Linear operators and matrices: the Peter Lancaster anniversary volume.** — Operator theory: advances and applications, vol. 130. — Un vol. relié, 17×23,5, de VI, 281 p. — ISBN 3-7643-6655-9. — Prix: SFr. 201.50. — Birkhäuser, Basel, 2002.

This volume is dedicated to Peter Lancaster, an outstanding expert in operator and matrix theory, numerical analysis and applications, on the occasion of his seventieth birthday. The book contains a selection of recent original research papers in linear algebra and analysis, areas in which Peter Lancaster was very active. The articles are complemented by biographical data and a list of publications.

László KÉRCHY, Ciprian FOIAS, Israel GOHBERG, Heinz LANGER, (Editors). — **Recent advances in operator theory and related topics: the Béla Szőkefalvi-Nagy memorial volume.** — Operator theory: advances and applications, vol. 127. — Un vol. relié, 18×24, de XLIX, 669 p. — ISBN 3-7643-6607-9. — Prix: SFr. 248.00. — Birkhäuser, Basel, 2001.

In August 1999, an international conference was held in Szeged, Hungary, in honor of Béla Szőkefalvi-Nagy, one of the founders and main contributors of modern operator theory. This

volume contains some of the papers presented at the meeting, complemented by several papers of experts who were unable to attend. These 35 refereed articles report on recent and original results in various areas of operator theory and connected fields, many of them strongly related to contributions of Szőkefalvi-Nagy. The scientific part of the book is preceded by fifty pages of biographical material, including several photos.

## Calcul des variations

Sergiu AIZICOVICI, Nicolae H. PAVEL, (Editors). — **Differential equations and control theory.** — Lecture notes in pure and applied mathematics, vol. 225. — Un vol. broché, 18×26, de VIII, 328 p. — ISBN 0-8247-0681-1. — Prix: US$150.00. — Marcel Dekker, New York, 2002.

Based on papers presented at the International Workshop on Differential Equations and Optimal Control held recently at Ohio University, Athens, this current reference contains new applied, deterministic, stochastic, and theoretical methods. *Differential Equations and Control Theory* details nonlinear programming and control with closed range operators... numerical approximation of the Riccati equation... Wentzell boundary conditions... impulse control for stochastic Navier-Stokes equations... current discoveries on the Lavrentiev phenomenon... least action for *N*-body problems... and more.

Jean-Baptiste HIRIART-URRUTY, Claude LEMARÉCHAL. — **Fundamentals of convex analysis.** — Grundlehren text editions. — Un vol. broché, 16×24, de X, 259 p. — ISBN 3-540-42205-6. — Prix: € 44.95. — Springer, Berlin, 2001.

This book is an abridged version of the two volumes *Convex Analysis and Minimization Algorithms I and II* (Grundlehren der mathematischen Wissenschaften Vol. 305 and 306), which presented an introduction to the basic concepts in convex analysis and a study of convex minimization problems. The "backbone" of both volumes was extracted, some material deleted that was deemed too advanced for an introduction, or too closely related to numerical algorithms. Some exercises were included and finally the index has been considerably enriched. The main motivation of the authors was to "light the entrance" of the monument Convex Analysis.

## Géométrie

Audun HOLME. — **Geometry: our cultural heritage.** — Un vol. relié, 16×24, de XVI, 378 p. — ISBN 3-540-41949-7. — Prix: € 34.95. — Springer, Berlin, 2002.

This book contains selected topics from the history of geometry, with "modern proofs" of some of the results, as well as a fully modern treatment of selected basic issues in geometry. The book aims at future teachers of mathematics. All too often the geometry which goes into the syllabus for teacher-students presents the material as pedantic and formalistic, suppressing its dynamic character and its role as part of the foundation for our common cultural heritage. The motivation for the book is to open up these aspects of the field. Another motivation is to provide an invitation to mathematics in general. Thus the book also aims at an informed public interested in making a new beginning in mathematics.

## Géométrie différentielle

Scot ADAMS. — **Dynamics on Lorentz manifolds**. — Un vol. relié, 17 ×23, de XIII, 402 p. — ISBN 981-02-4382-0. — Prix: £29.00. — World Scientific, Singapore, 2001.

Within the general framework of the dynamics of "large" groups on geometric spaces, the focus is on the types of groups that can act in complicated ways on Lorentz manifolds, and on