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## *Fonctions de variables réelles*

Emmanuelle DiBENEDETTO. — **Real analysis.** — Birkhäuser advanced texts – Basler Lehrbücher. — Un vol. relié,  $16 \times 24$ , de xxiv, 485 p. — ISBN 0-8176-4231-5. — Prix: SFr. 158.00. — Birkhäuser, Boston, 2002.

The focus of this modern graduate text in real analysis is to prepare the potential researcher to a rigorous “Way of thinking” in applied mathematics and partial differential equations. The book will provide excellent foundations and serve as a solid building block for research in analysis, PDEs, the calculus of variations, probability, and approximation theory. All the core topics of the subject are covered, from a basic introduction to functional analysis, to measure theory, integration and weak differentiation of functions, and in a presentation that is hands-on, with little or no unnecessary abstractions. A number of excellent problems, as well as some remarkable features of the exercises, occur at the end of every chapter, which point to additional theorems and results. Stimulating open problems are proposed.

R.M. DUDLEY. — **Real analysis and probability.** — Cambridge studies in advanced mathematics, vol. 74. — Un vol. broché,  $15,5 \times 23,5$ , de x, 555 p. — ISBN 0-521-00754-2 (relié: 0-521-80972-X). — Prix: £32.95 (relié: £90.00). — Cambridge University Press, Cambridge, 2002.

The first half of the book gives an exposition of real analysis: basic set theory, general topology, measure theory, integration, an introduction to functional analysis in Banach and Hilbert spaces, convex sets and functions, and measure on topological spaces. The second half introduces probability based on measure theory, including laws of large numbers, ergodic theorems, the central limit theorem, conditional expectations, and martingale convergence. A chapter on stochastic processes introduces Brownian motion and the Brownian bridge. The new edition has been made even more self-contained than before; it now includes early in the book a foundation of the real number system and the Stone-Weierstrass theorem on uniform approximation in algebras of functions. Several other sections have been revised and improved, and the extensive historical notes have been further amplified. A number of new exercises, and hints for solution of old and new ones, have been added.

Donald ESTEP. — **Practical analysis in one variable.** — Undergraduate texts in mathematics. — Un vol. relié,  $16 \times 24$ , de xx, 621 p. — ISBN 0-387-95484-8. — Prix: €59.95. — Springer, New York, 2002.

This book attempts to place the basic ideas of real analysis and numerical analysis together in an applied setting that is both accessible and motivational to young students. The essentials of real analysis are presented in the context of a fundamental problem of applied mathematics, which is to approximate the solution of a physical model. The book includes background and review material, numerous examples, visualizations and alternate explanations of some key ideas, and a variety of exercises ranging from simple computations to analysis and estimates to computations on a computer.

## *Fonctions d'une variable complexe*

Jürgen JOST. — **Compact Riemann surfaces: an introduction to contemporary mathematics.** — Second edition. — Universitext. — Un vol. broché,  $15,5 \times 24$ , de xi, 278 p. — ISBN 3-540-43299-X. — Prix: SFr. 68.50. — Springer, Berlin, 2002.

Although Riemann surfaces are a time-honoured field, this book is novel in its broad perspective that systematically explores the connection with other fields of mathematics. It can

serve as an introduction to contemporary mathematics as a whole as it develops background material from algebraic topology, differential geometry, the calculus of variations, elliptic PDE, and algebraic geometry. It is unique among textbooks on Riemann surfaces in including an introduction to Teichmüller theory. The analytic approach is likewise new as it is based on the theory of harmonic maps. For this 2<sup>nd</sup> edition the author has further improved aspects of presentation of various parts of the text.

### ***Fonctions de plusieurs variables complexes***

Ingrid BAUER, Fabrizio CATANESE, Yujiro KAWAMATA, Thomas PETERNELL, Yum-Tong SIU, (Editors). — **Complex geometry: collection of papers dedicated to Hans Grauert.** — Un vol. relié, 16×24, de XXII, 340 p. — ISBN 3-540-43259-0. — Prix: SFr. 133.00. — Springer, Berlin, 2002.

This book is a collection of research articles in algebraic geometry and complex analysis dedicated to Hans Grauert. The contributions of the authors and editors have been put together to honor the distinguished scientist whose inspiration and pioneering fundamental work have left such a widespread and lasting impact on the field. The volume contains important new results, solutions to longstanding conjectures, elegant new proofs and new perspectives for future research. The topics range from surface theory and commutative algebra, linear systems, moduli spaces, classification theory, Kähler geometry to holomorphic dynamical systems.

Klaus FRITZSCHE, Hans GRAUERT. — **From holomorphic functions to complex manifolds.** — Graduate texts in mathematics, vol. 213. — Un vol. relié, 16×24, de xv, 392 p. — ISBN 0-387-95395-7. — Prix: € 64.95. — Springer, New York, 2002.

This book is an introduction to the theory of complex manifolds. The authors' intent is to familiarize the reader with the most important branches and methods in complex analysis of several variables and to do this as simply as possible. Therefore, the abstract concepts involving sheaves, coherence, and higher-dimensional cohomology have been completely avoided. Only elementary methods such as power series, holomorphic vector bundles, and one-dimensional cocycles are used. Nevertheless, deep results can be proved, for example, the Remmert-Stein theorem for analytic sets, finiteness theorems for spaces of cross sections in holomorphic vector bundles, and the solution of the Levi problem. Each chapter is complemented by a variety of examples and exercises. The only prerequisite needed to read this book is a knowledge of real analysis and some basic facts from algebra, topology, and the theory of one complex variable. The book can be used as a first introduction to several complex variables as well as a reference for the expert.

Jeffery D. MCNEAL, (Editor). — **Complex analysis and geometry.** — Proceedings of a conference at the Ohio State University, June 3-6, 1999. — Ohio State University Mathematical Research Institute publications, vol. 9. — Un vol. relié, 17,5×24,5, de 191 p. — ISBN 3-11-016809-X. — Prix: € 98.00. — Walter de Gruyter, Berlin, 2001.

The conference was devoted to some recent developments in complex analysis, with particular emphasis on developments arising from PDE methods and techniques in algebraic and differential geometry. The articles in this volume are written in a more expository style and contain significant, new results which are previously unpublished. — *Contents:* M.S. Baouendi, Linda Preiss Rothschild, Dmitri Zaitsev: Points in general position in real-analytic submanifolds in  $\mathbb{C}^N$ . — David E. Barrett: Holomorphic motion of circles through affine bundles. — Bo Berndtsson: Weighted estimates for the delta bar-equation. — Michael Christ: Hypocoellipticity in the infinitely degenerate regime. Spiraling and nonhypoellipticity. — John P. D'Angelo: