

Zeitschrift: L'Enseignement Mathématique
Herausgeber: Commission Internationale de l'Enseignement Mathématique
Band: 45 (1999)
Heft: 1-2: L'ENSEIGNEMENT MATHÉMATIQUE

Kapitel: Fonctions de plusieurs variables complexes

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Mesure et intégration

Klaus BICHTLER. — **Integration: a functional approach.** — Birkhäuser advanced text. — Un vol. relié, 17×24, de VIII, 193 p. — ISBN 3-7643-5936-6. — Prix: SFr. 68.00. — Birkhäuser Verlag, Basel, 1998.

This book covers Lebesgue integration and its generalizations from Daniell's point of view, modified by the use of seminorms. Integrating functions rather than measuring sets is posited as the main purpose of measure theory. From this point of view Lebesgue's integral can be had as a rather straightforward, even simplistic, extension of Riemann's integral; and its aims, definitions, and procedures can be motivated at an elementary level.

Paul KRÉE. — **Intégration et théorie de la mesure: une approche géométrique.** — Mathématiques pour le 2^e cycle. — Un vol. broché, 17,5×26, de x, 211 p. — ISBN 2-7298-6718-X. — Prix: FF 140.00. — Ellipses, Paris, 1997.

La collection *Mathématiques 2^e cycle* se propose de mettre à la disposition des étudiants de licence et de maîtrise de mathématiques des ouvrages couvrant l'essentiel des programmes actuels des universités françaises. Les auteurs ont voulu rendre ces livres accessibles à tous: les sujets traités sont présentés de manière simple et progressive, tout en respectant scrupuleusement la rigueur mathématique. Chaque volume comporte un exposé du cours avec des démonstrations détaillées de tous les résultats essentiels, et de nombreux exercices.

Pertti MATTILA. — **Geometry of sets and measures in Euclidean spaces: fractals and rectifiability.** — Cambridge studies in advanced mathematics, vol. 44. — Un vol. broché, 15,5×23, de XII, 343 p. — ISBN 0-521-65595-1. — Prix: £40.00. — Cambridge University Press, Cambridge, 1999.

The main theme of this book is the study of geometric properties of general sets and measures in Euclidean spaces. Applications of this theory include fractal-type objects such as strange attractors for dynamical systems and those fractals used as models in the sciences. The author provides a firm and unified foundation and develops all the necessary main tools, such as covering theorems, Hausdorff measures and their relations to Riesz capacities and Fourier transforms. The last third of the book is devoted to the Besicovitch-Federer theory of rectifiable sets, which form in a sense the largest class of subsets of Euclidean space possessing many of the properties of smooth surfaces.

C.A. ROGERS. — **Hausdorff measures.** — Cambridge mathematical library. — Un vol. broché, 25×23, de XXX, 195 p. — ISBN 0-521-62491-6. — Prix: £17.95. — Cambridge University Press, Cambridge, 1998.

This new edition has a foreword by Kenneth Falconer outlining the developments in measure theory since this book first appeared. There are three chapters: the first contains an introduction to measure theory, paying particular attention to the study of non-sigma-finite measures, the second develops the most general aspects of the theory of Hausdorff measures and the third gives a general survey of applications of Hausdorff measures followed by detailed accounts of two special applications. Based on lectures given by the author at University College London this book is ideal for graduate mathematicians with no previous knowledge of the subject, but experts in the field will also want a copy for their shelves.

Fonctions de plusieurs variables complexes

M. Salah BAOUENDI, Peter EBENFELT, Linda Preiss ROTHSCHILD. — **Real submanifolds in complex space and their mappings.** — Princeton mathematical series, vol. 47. — Un vol.

relié, 16×24, de xii, 404 p. — ISBN 0-691-00498-6. — Prix: US\$69.50. — Princeton University Press, Princeton, 1999.

One of the most important topics the authors address here is the holomorphic extension of functions and mappings which satisfy the tangential Cauchy-Riemann equations on real submanifolds. They present the main results in this area with a novel and self-contained approach. The book devotes considerable attention to the study of holomorphic mappings between real submanifolds, and proves finite determination of such mappings by their jets under some optimal assumptions. The authors also give a thorough comparison of the various nondegeneracy conditions for manifolds and mappings and present new geometric interpretations of these conditions. Throughout the book, Cauchy-Riemann vector fields and their orbits play a central role and are presented in a setting both general and elementary.

Fonctions spéciales

George E. ANDREWS, Richard ASKEY, Ranjan ROY. — **Special functions.** — Encyclopedia of mathematics and its applications, vol. 71. — Un vol. relié, 16×24, de xvi, 664 p. — ISBN 0-521-62321-9. — Prix: £55.00. — Cambridge University Press, Cambridge, 1999.

This treatise presents an overview of special functions, focusing primarily on hypergeometric functions and the associated hypergeometric series, including Bessel functions and classical orthogonal polynomials. The basic building block of the functions studied in this book is the gamma functions. In addition to relatively new work on gamma and beta functions, such as Selberg's multidimensional integrals, a number of important but relatively unknown nineteenth century results are included. The authors discuss Wilson's beta integral and the associated orthogonal polynomials. Some q -extensions of beta integrals and hypergeometric series are presented with Bailey chains employed to derive some results. An introduction to spherical harmonics and applications of special functions to combinatorial problems are included. The book also deals with finite field versions of some beta integrals.

William B. JONES, A. Sri RANGA, (Editors). — **Orthogonal functions, moment theory, and continued fractions: theory and applications.** — Lecture notes in pure and applied mathematics, vol. 199. — Un vol. broché, 17,5×25,5, de xii, 416 p. — ISBN 0-8247-0207-7. — Prix: US\$165.00. — Marcel Dekker, Inc., New York, 1998.

Featuring the insights of nearly 30 contributors, *Orthogonal Functions, Moment Theory, and Continued Fractions* analyzes the asymptotic behavior of continued fraction coefficients for the Binet and gamma functions... details new results on orthogonal Laurent polynomials... computes special functions in the complex domain using continued fractions... uses the Freud conjecture to analyze the coefficients of Stieltjes continued fractions for the first time... presents new results using Szegő polynomials and their application to frequency analysis... develops new results on strong moment theory and orthogonal rational functions using finite Blaschke products... proves that a two-parameter subfamily can subsume a four-parameter family of twin-convergence regions for continued fractions... etc.

Equations différentielles ordinaires

Angelo FAVINI, Atsushi YAGI. — **Degenerate differential equations in Banach spaces.** — Pure and applied mathematics, vol. 215. — Un vol. relié, 16×23,5, de xi, 313 p. — ISBN 0-8247-1677-9. — Prix: US\$155.00. — Marcel Dekker Inc., New York, 1998.

This book contains a detailed study of linear abstract degenerate differential equations and the regularity of their relations, using the semigroups generated by multivalued (linear)