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Mesure et intégration

Washek F. PFEFFER. — **Derivation and integration.** — Cambridge tracts in mathematics, vol. 140. — Un vol. relié, 16×23,5, de xvi, 266 p. — ISBN 0-521-79268-1. — Prix: £45.00. — Cambridge University Press, Cambridge, 2001.

This book is devoted to an invariant multidimensional process of recovering a function from its derivative. It considers additive functions defined on the family of all bounded BV sets that are continuous with respect to a suitable topology. A typical example is the flux of a continuous vector field. A very general Gauss-Green theorem follows from the sufficient conditions for the derivability of the flux. Since the setting is invariant with respect to local lipeomorphisms, a standard argument extends the Gauss-Green theorem to the Stokes theorem on Lipschitz manifolds. In addition, the author proves the Stokes theorem for a class of top-dimensional normal currents – a first step toward solving a difficult open problem of derivation and integration in middle dimensions.

Fonctions d'une variable complexe

Raghavan NARASIMHAN, Yves NIEVERGELT. — **Complex analysis in one variable.** — Second edition. — Un vol. relié, 16,5×24, de xiv, 381 p. — ISBN 0-8176-4164-5. — Prix: SFr. 118.00. — Birkhäuser, Boston, 2001.

This book presents complex analysis in one variable in the context of modern mathematics, with clear connections to several complex variables, de Rham theory, real analysis, and other branches of mathematics. New to this second edition, a collection of over 100 pages worth of exercises, problems, and examples gives students an opportunity to consolidate their command of complex analysis and its relations to other branches of mathematics, including advanced calculus, topology, and real applications.

Théorie du potentiel

David H. ARMITAGE, Stephen J. GARDINER. — **Classical potential theory.** — Springer monographs in mathematics. — Un vol. relié, 16,5×24, de xvi, 333 p. — ISBN 1-85233-618-8. — Prix: DM 159.00. — Springer, London, 2001.

This book covers harmonic and subharmonic functions, maximum principles, polynomial expansions, Green functions, potentials and capacity, the Dirichlet problem and boundary integral representations. The first six chapters deal concretely with the basic theory, and include exercises. The final three chapters are more advanced and treat topological ideas specifically created for potential theory, such as the fine topology, the Martin boundary and minimal thinness. The presentation is largely self-contained and is accessible to graduate students, with the only prerequisites being a reasonable grounding in analysis and several variables calculus, and a first course in measure theory.

Fonctions de plusieurs variables complexes

Marek JARNICKI, Peter PFLUG. — **Extension of holomorphic functions.** — De Gruyter expositions in mathematics, vol. 33. — Un vol. relié, 17,5×24,5, de x, 487 p. — ISBN 3-11-015363-7. — Prix: DM 248.00. — Walter de Gruyter, Berlin, 2000.

From the authors' preface: This monograph is devoted to a systematic exposition of the theory of extension of holomorphic functions, e. g. characterizations of envelopes of holomorphy

with respect to various families of holomorphic functions. Therefore, there is emphasis on a detailed presentation of holomorphic convexity and pseudoconvexity of Riemann domains over \mathbb{C}^n . Our interest in this area of complex analysis started directly after our studies when both of us were interested in continuation of holomorphic functions. During the years we got the impression that there is a need to have a source where the main results could be found. We hope this book can serve as such a source. The choice of topics obviously reflects our personal preferences. Most of the results have not yet been published in book form. The text will be of interest both to students and experts.

Fonctions spéciales

George E. ANDREWS, Richard ASKEY, Ranjan ROY. — **Special functions.** — Encyclopedia of mathematics and its applications, vol. 71. — Un vol. broché, $16,5 \times 23,5$, de xvi, 661 p. — ISBN 0-521-78988-5 (relié: 0-521-62321-9). — Prix: £22.95 (relié: £60.00). — Cambridge University press, Cambridge, 2001.

This book 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 function. 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 of 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.

Charles F. DUNKL, Yuan XU. — **Orthogonal polynomials of several variables.** — Encyclopedia of mathematics and its applications, vol. 81. — Un vol. relié, 16×24 , de xv, 390 p. — ISBN 0-521-80043-9. — Prix: £55.00. — Cambridge University Press, Cambridge, 2001.

This is the first modern book on orthogonal polynomials of several variables, which are interesting both as objects of study and as tools used in multivariate analysis, including approximations and numerical integration. The book, which is intended both as an introduction to the subject and as a reference, presents the theory in elegant form and with modern concepts and notation. It introduces the general theory and emphasizes the classical types of orthogonal polynomials whose weight functions are supported on standard domains such as the cube, the simplex, the sphere and the ball, or those of Gaussian type, for which fairly explicit formulae exist. The approach is a blend of classical analysis and symmetry-group-theoretic methods.

Equations différentielles ordinaires

Jon H. DAVIS. — **Differential equations with Maple: an interactive approach.** — Un vol. relié, $16,5 \times 24$, de xiv, 409 p. + 1 CD-ROM. — ISBN 0-8176-4181-5. — Prix: SFr. 108.00. — Birkhäuser, Boston, 2001.

What this book offers: coverage of all essential topics, including some classical ones not generally found in differential equations courses at this level. Discussion of all standard solutions methods; numerous graphical interpretations of solutions. A careful introduction to MAPLE fundamentals; students become familiar with MAPLE commands to simplify calculations, solve difficult problems, and experience MAPLE's power as a research tool. An