

# Equations différentielles ordinaires

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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)

operators and extensions of the operational method of Da Prato and Grisvard. It introduces the semigroups of weak type generated by multivalued linear operators for the first time and includes classical results pertaining to linear operators, evolution equations, and interpolation theory. It presents recent results on the regularity of semigroups generated by second order degenerate parabolic operators in various function spaces.

Arkadii Kh. GEILIG, Alexander N. CHURILOV. — **Stability and oscillations of nonlinear pulse-modulated systems.** — Un vol. relié, 16×24, de xvi, 362 p. — ISBN 0-8176-3987-X. — Prix: SFr. 128.00. — Birkhäuser, Boston, 1998.

The mathematical methods for studying stability and oscillations in control systems with various types of pulse modulation (pulse-width, pulse-frequency, combined and phases in different modifications) are treated comprehensively in this new book. The original approaches developed by the authors are of particular interest. They include the averaging methods which enable the reader to extend pulse-modulated systems, to absolute stability theory and the fixed-point approach for study of forced oscillations.

Michael I. GIL'. — **Stability of finite and infinite dimensional systems.** — The Kluwer international series in engineering and computer science. — Un vol. relié, 16×24, de xviii, 354 p. — ISBN 0-7923-8221-8. — Prix: Dfl. 330.00. — Kluwer Academic Publishers, Boston, 1998.

The aim of the book is to provide new tools for specialists in control system theory, stability theory of ordinary and partial differential equations, and differential-delay equations. This is the first book that gives a systematic exposition of the approach to stability analysis which is based on estimates for matrix-valued and operator-valued functions, allowing us to investigate various classes of finite and infinite dimensional systems from the unified viewpoint. This book contains solutions to the problems connected with the Aizerman and generalized Aizerman conjectures and presents fundamental results by A.Yu. Levin for the stability of nonautonomous systems having variable real characteristic roots.

A.A. MARTYNYUK. — **Stability by Liapunov's matrix function method with applications.** — Pure and applied mathematics, vol. 214. — Un vol. relié, 16×23,5, de x, 276 p. — ISBN 0-8247-0191-7. — Prix: USS 150.00. — Marcel Dekker, Inc., New York, 1998.

The book models the stability of actual objects using ordinary differential equations, singularly perturbed systems, and high-dimensional stochastic systems... tests the multistability of motion in large-scale systems using matrix-valued functions... details the classic direct Liapunov method and its variants... compares scalar, vector, and matrix-valued Liapunov functions... proposes a new generalization of the matrix-valued auxiliary function... formulates the criteria of motion stability using special matrices... extends auxiliary functions to make the direct Liapunov method more powerful... etc.

## *Equations aux dérivées partielles*

Joachim ESCHER, Gieri SIMONETT, (Editors). — **Topics in nonlinear analysis: the Herbert Amann anniversary volume.** — Progress in nonlinear differential equations and their applications, vol. 35. — Un vol. relié, 16×24, de ix, 744 p. — ISBN 3-7643-6016-X. — Prix: SFr. 188.00. — Birkhäuser Verlag, Basel, 1999.

Herbert Amann's work is distinguished and marked by great lucidity and deep mathematical understanding. The present collection of 31 research papers reflects his interest and lasting