Systèmes dynamiques et théorie ergodique

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definitions... examines the theory of linear-invariant families on the Euclidean unit ball and the polydisc... introduces the infinite-dimensional theory of univalent mappings... and provides numerous exercises in each chapter.

Équations différentielles ordinaires

William E. BOYCE, Richard C. DIPRIMA. — **Équations différentielles.** — Adaptation française: Richard LABONTÉ, avec la collaboration de Fernand BAUDET, traduction de l'américain: Louise DUROCHER. — Un vol. broché, 21×27,5, de X, 630 p. — ISBN 2-89461-715-1. — Prix: SFr. 110.50. — Chenelière/McGraw-Hill, Montréal, 2002, diffusé par Servidis, Lonay, Suisse.

Avant-propos: Cet ouvrage a été rédigé du point de vue du mathématicien dont l'intérêt pour les équations différentielles peut être soit théorique, soit pratique, soit quelque part entre les deux. Nous avons cherché à combiner un exposé solide et précis (mais non abstrait) de la théorie élémentaire des équations différentielles avec beaucoup d'accent sur les méthodes de résolution, l'analyse et l'approximation des solutions. Ce manuel s'adresse d'abord aux étudiants de premier cycle en mathématiques, en sciences ou en ingénierie... Le préalable essentiel est la connaissance pratique du calcul différentiel et intégral acquise durant un cours de deux ou trois semestres ou l'équivalent... un bon manuel doit pouvoir être adapté à diverses stratégies d'enseignement. Cela implique au moins deux choses. Premièrement, le professeur doit pouvoir choisir les sujets qu'il désire traiter et l'ordre dans lequel il souhaite enseigner cette matière. Deuxièmement, le manuel doit être utile aux étudiants qui ont accès à une grande variété de technologies. Le présent manuel permet cette souplesse car nous nous sommes efforcés dans la mesure du possible de rendre chaque chapitre indépendant les uns des autres...

Équations aux dérivées partielles

Yu. Ya. BELOV. — **Inverse problems for partial differential equations.** — Inverse and ill-posed problems series. — Un vol. relié, 16×24,5, de VIII, 211 p. — ISBN 90-6764-358-0. — Prix: € 128.00. — VSP, Utrecht, 2002.

This monograph is devoted to identification problems of coefficients in equations of mathematical physics. It investigates the existence and uniqueness of the solutions for identification coefficient problems in parabolic and hyperbolic equations and equation systems of composite type. It includes a study on the problems with Cauchy data and equations in which the Fourier transform with respect to the chosen variable is supposed to occur. Differential properties of solutions for direct problems and their behaviour under great values of time are studied on the basis of solution properties for direct problems. In addition, identification problems with one or two unknown coefficients are investigated.

Systèmes dynamiques et théorie ergodique

R. Daniel MAULDIN, Mariusz URBAŃSKI. — **Graph directed Markov systems: geometry and dynamics of limit sets.** — Cambridge tracts in mathematics, vol. 148. — Un vol. relié, 16×23, de XI, 281 p. — ISBN 0-521-82538-5. — Prix: £37.50. — Cambridge University Press, Cambridge, 2003.

The main focus of this book is the exploration of the geometric and dynamic properties of a far reaching generalization of a conformal iterated function system – a graph directed Markov

system. These systems are very robust in that they apply to many settings that do not fit into the scheme of conformal iterated systems. The basic theory is laid out here and the authors have touched on many natural questions arising in its context. However, they also emphasize the many issues and current research topics which can be found in original papers, for example the detailed analysis of the structure of harmonic measures of limit sets, the examination of the doubling property of conformal measures, the extensive study of generalized polynomial-like mapping or multifractal analysis of geometrically finite Kleinian groups.

Yuri B. SURIS. — **The problem of integrable discretization: Hamiltonian approach.** — Progress in mathematics, vol. 219. — Un vol. relié, 17×24, de XXI, 1070 p. — ISBN 3-7643-6995-7. — Prix: SFr. 228.00. — Birkhäuser, Basel, 2003.

The book explores the theory of discrete integrable systems, with an emphasis on the following general problem: how to discretize one or several of independent variables in a given integrable system of differential equations, maintaining the integrability property? This question (related in spirit to such a modern branch of numerical analysis as geometric integration) is treated in the book as an immanent part of the theory of integrable systems, also commonly termed as the theory of solitons. Among several possible approaches to this theory, the Hamiltonian one is chosen as the guiding principle. A self-contained exposition of the Hamiltonian (r-matrix, or "Leningrad") approach to integrable systems is given, culminating in the formulation of a general recipe for integrable discretization of r-matrix hierarchies. The book is a kind of encyclopedia on discrete integrable systems. It unifies the features of a research monograph and a handbook. It is supplied with an extensive bibliography (about 700 items).

Approximations et développements en série

Carlo BARDARO, Julian MUSIELAK, Gianluca VINTI. — **Nonlinear integral operators and applications.** — De Gruyter series in nonlinear analysis and applications, vol. 9. — Un vol. relié, 17,5×24,5, de XII, 201 p. — ISBN 3-11-017551-7. — Prix: €88.00. — Walter de Gruyter, Berlin, 2003.

This book represents the first attempt at a comprehensive treatment of approximation theory by means of nonlinear integral operators in function spaces. In particular, the fundamental notions of approximate identity for kernels of nonlinear operators and a general concept of modulus of continuity are developed in order to obtain consistent approximation results. Applications to nonlinear summability, nonlinear integral equations and nonlinear sampling theory are given. In particular, the study of nonlinear sampling operators in various function spaces is important since the results permit the processing of several classes of signals. In a wider context, the material of this book represents a starting point for new areas of research in nonlinear analysis. For this reason the text is written in a style accessible not only to researchers but to advanced students as well.

Manfred REIMER. — **Multivariate polynomial approximation.** — International series of numerical mathematics, vol. 144. — Un vol. relié, 17×24, de X, 358 p. — ISBN 3-7643-1638-1. — Prix: SFr. 156.00. — Birkhäuser, Basel, 2003.

The book begins with an introduction to the general theory by presenting the most important facts on multivariate interpolation, quadrature, orthogonal projections and their summation, all treated under a constructive view, and embedded in the theory of positive linear operators. On this background, the book gives the first comprehensive introduction to the recently developed theory of generalized hyperinterpolation, which is a positive discrete polynomial approximation