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Kapitel: Equations aux différences finies, équations fonctionnelles

for the real semisimple Lie groups, such as the Cartan and Iwasawa decompositions, and gives an extensive exposition of the general facts and concepts from topological dynamics and ergodic theory, including detailed proofs of the multiplicative ergodic theorem and Moore's ergodic theorem.

Jacek GRACZYK, Grzegorz ŚWIATEK. — **The real Fatou conjecture.** — Annals of mathematics studies, No. 144. — Un vol. broché, 15,5×23,5, de VIII, 148 p. — ISBN 0-691-00258-4. — Prix: US$22.50. — Princeton University Press, Princeton, 1998.

In 1920, Pierre Fatou expressed the conjecture that all critical points of a rational map of the Riemann sphere tend to periodic orbits under iteration. This conjecture remains the main open problem in the dynamics of iterated maps. In this book, the authors provide a rigorous proof of the Real Fatou Conjecture. In spite of the apparently elementary nature of the problem, its solution requires advanced tools of complex analysis. The authors have written a self-contained and complete version of the argument, accessible to someone with no knowledge of complex dynamics and only basic familiarity with interval maps.

M.G. NADKARNI. — **Basic ergodic theory.** — Second edition. — Birkhäuser advanced texts. — Un vol. relié, 17×24, de VI, 149 p. — ISBN 3-7643-5816-5. — Prix: SFr. 58.00. — Birkhäuser Verlag, Basel, 1995.

A new feature of the book is that the basic topics of ergodic theory such as the Poincaré recurrence lemma, induced automorphisms and Kakutani towers, compressibility and E. Hopf's theorem, the theorem of Ambrose on representation of flows are treated at the descriptive set-theoretic level before their measure-theoretic or topological versions are presented. In addition, topics centering around the Glimm-Effros theorem are discussed, topics which have so far not found a place in texts on ergodic theory. In this second edition, a section on rank one automorphisms and a brief discussion of the ergodic theorem due to Wiener and Wintner have been added.

M.G. NADKARNI. — **Spectral theory of dynamical systems.** — Birkhäuser advanced texts. — Un vol. relié, 17,5×24, de VII, 182 p. — ISBN 3-7643-5817-3. — Prix: SFr. 78.00. — Birkhäuser Verlag, Basel, 1998.

This book introduces some basic topics in the spectral theory of dynamical systems, but also includes advanced topics such as a theorem due to H. Helson and W. Parry, and another due to B. Host. Moreover, Ornstein's family of mixing rank one automorphisms is described with construction and proof. Systems of imprimitivity, and their relevance to ergodic theory, are discussed. Baire category theorems of ergodic theory, scattered in the literature, are derived in a unified way. Riesz products are considered, and they are used to describe the spectral types and eigenvalues of rank one automorphisms.

Equations aux différences finies, équations fonctionnelles

Peter A. CLARKSON, Frank W. NIJHOFF, (Editors). — **Symmetries and integrability of difference equations.** — London Mathematical Society lecture note series, vol. 255. — Un vol. broché, 15,5×23, de XVI, 424 p. — ISBN 0-521-59699-8. — Prix: £27.95. — Cambridge University Press, Cambridge, 1999.

There has, in recent years, been a remarkable growth of interest in the area of discrete integrable systems. Much progress has been made by applying symmetry groups to the study of

differential equations, and connections have been made to other topics such as numerical methods, cellular automata and mathematical physics. This volume is comprised of state-of-the-art articles from almost all the leading workers in this important and rapidly developing area, making it a necessary resource for all researchers interested in discrete integrable systems or related subjects.

Approximations et développements en série

N.K. GOVIL, R.N. MOHAPATRA, Z. NASHED, A. SHARMA, J. SZABADOS, (Editors). — **Approximation theory: in memory of A.K. Varma.** — Pure and applied mathematics, vol. 212. — Un vol. relié, 16×23,5, de XXII, 517 p. — ISBN 0-8247-0185-2. — Prix: US$ 195.00. — Marcel Dekker, Inc., New York, 1998.

This work honors A.K. Varma's indelible contributions to the field of approximation theory with a collection of over 30 carefully selected papers by 45 internationally distinguished mathematicians, reflecting his lifelong passion for investigating subjects such as interpolation by polynomials and splines, quadrature formulae, order of pointwise and uniform approximation of finitely differentiable functions by polynomials, and Bernstein and Markov type inequalities in L^p and uniform metrics.

Analyse de Fourier, analyse harmonique abstraite

Christian BLATTER. — **Wavelets: a primer.** — Un vol. relié, 16×23,5, de X, 202 p. — ISBN 1-56881-095-4. — Prix: US$ 32.00. — A.K. Peters, Natick, 1998.

The wavelet transform, with its many applications, has become a major new mathematical technique. It has stimulated research unparalleled since the invention of the Fast Fourier Transform (FFT) and opened new avenues of application in signal processing, image compression, radiology, cardiology, and many other areas. This book grew out of a short course for mathematics students at the ETH in Zürich; it provides a solid, yet accessible, mathematical foundation for those interested in learning about wavelets and pursuing the broad range of applications for which the wavelet transform has proved successful.

C. GASQUET, P. WITOMSKI. — **Fourier analysis and applications: filtering, numerical computation, wavelets.** — Translated by R. Ryan. — Texts in applied mathematics, vol. 30. — Un vol. relié, 16×24, de XVIII, 442 p. — ISBN 0-387-98485-2. — Prix: DM 98.00. — Springer, New York, 1999.

The object of this text, which focuses on Fourier analysis, signal analysis, and filters, is twofold. On the one hand, it conveys to the mathematician a rigorous presentation illustrated with important practical applications of the theory, including a discussion of the Fast Fourier Transform. On the other hand it imparts to the physicist and engineer a body of theory in which the well-known formulae find their justification. There is a systematic development of fundamental concepts, such as the Lebesgue integration and theory of distributions, which allows one to establish precise relations among several domains: Fourier transform and convolution; filtering and sampling; and time-frequency analysis (Gabor transforms and wavelets).

Abdul J. JERRI. — **The Gibbs phenomenon in Fourier analysis, splines and wavelet approximations.** — Mathematics and its applications, vol. 446. -Un vol. relié, 16,5×24,5, de XXVII, 336 p. — ISBN 0-7923-5109-6. — Prix: Dfl. 300.00. — Kluwer Academic Publishers, Dordrecht, 1998.

This is the first book dedicated to covering the basic elements of the Gibbs phenomenon as it appears in various applications where functions with jump discontinuities are represented. It