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Kapitel: Analyse de Fourier, analyse harmonique abstraite

Analyse de Fourier, analyse harmonique abstraite

Juha HEINONEN. — **Lectures on analysis on metric spaces.** — Universitext. — Un vol. relié, 16,5×24, de X, 140 p. — ISBN 0-387-95104-0. — Prix: DM 79.00. — Springer, New York, 2001.

The purpose of this book is to communicate some of the recent work in the area while preparing the reader to study more substantial, related articles. The material can be roughly divided into three different types: classical, standard but sometimes with a new twist, and recent. The author first studies basic covering theorems and their applications to analysis in metric measure spaces. This is followed by a discussion on Sobolev spaces emphasizing principles that are valid in larger contexts. The last few sections of the book present a basic theory of quasisymmetric maps between metric spaces. Much of the material is relatively recent and appears for the first time in book format.

Massimo A. PICARDELLO. — **Harmonic analysis and integral geometry. —** Chapman & Hall/CRC research notes in mathematics, vol. 422. — Un vol. broché, 15,5×23,5. — ISBN 1-58488-183-6. — Prix: £49.99. — Chapman & Hall/CRC, Boca Raton, 2001.

Comprising a selection of expository and research papers, this book grew from presentations offered at July 1998 Summer University of Safi, Morocco – an annual, advanced research school and congress. It presents important recent advances in the fields of Radon transforms, integral geometry, and harmonic analysis on Lie groups and symmetric spaces. Several articles are devoted to the new theory of Radon transforms on trees.

Analyse fonctionnelle

José M. GRACIA-BONDÍA, Joseph C. VÁRILLY, Héctor FIGUEROA. — **Elements of noncommutative geometry.** — Birkhäuser advanced texts. — Un vol. relié, 16,5×24, de XVI, 685 p. — ISBN 0-8176-4124-6. — Prix: SFr. 118.00. — Birkhäuser, Boston, 2001.

Noncommutative geometry deals with the unification of mathematics under the aegis of the quantum apparatus, that is, the theory of operators and C*-algebras. In recent years noncommutative geometry has been a rich topic of research with discoveries leading to an increasing number of applications in mathematics and theoretical physics. Very little has appeared in book form since Alain Connes' work in the early 90s to deal with this subject. *Elements of Noncommutative Geometry* fills an important gap in the literature. Rich in proofs, examples and exercises, the book is an introduction to the language and techniques of noncommutative geometry at a level suitable for graduates students, and also provides sufficient detail to be useful to physicists and mathematicians wishing to enter this rapidly growing field.

Roland HAGEN, Steffen ROCH, Bernd SILBERMANN. — **C*-algebras and numerical analysis.** — Pure and applied mathematics, vol. 236. — Un vol. relié, 16×23,5, de 376 p. — ISBN 0-8247-0460-6. — Prix: US$ 165.00. — Marcel Dekker, New York, 2000.

This book examines the relationship between C*-algebras and numerical analysis; discusses fractality — covering asymptotic properties of approximation operators such as stability, regularizability, behavior of condition numbers, eigenvalues, pseudoeigenvalues, singular values, and Rayleigh quotients; and describes Fredholmness — focusing on algebras that arise from concrete approximation methods. *C*-Algebras and Numerical Analysis*; presents Arveson's results culminating in a generalization of the Szegö limit theorem; introduces kernel and cokernel dimension for approximation sequences; outlines the lifting theorem and the structure of fractal lifting homomorphisms; studies piecewise continuous and quasicontinuous coefficients; details polynomial collocation and finite sections of band dominated operators; considers spectra,