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presented in the finite-dimensional context, using only linear algebra. Then Fourier series are introduced in order to develop wavelets in the infinite-dimensional, but discrete context. Finally, the text discusses Fourier transform and wavelet theory on the real line. The computation of the wavelet transform via filter banks is emphasized, and applications to signal compression and numerical differential equations are given.

Transformations intégrales, calcul opérationnel

Sigurdur HELGASON. — **The Radon transform.** — Second revised and extended edition. — Progress in mathematics, vol. 5. — Un vol. relié, 16×24, de XII, 188 p. — ISBN 3-7643-4109-2. — Prix: SFr. 74.00. — Birkhäuser, Boston, 1999.

This second edition, significantly expanded and updated, presents new material taking into account some of the progress made in the field since 1980. The first chapter introduces the Radon transform and presents new material on the d-plane transform and applications to the wave equation. Chapter 2 places the Radon transform in a general framework of integral geometry known as a double fibration of a homogeneous space. Several significant examples are developed in detail. Two subsequent chapters treat some specific examples of generalized Radon transforms, for example, antipodal manifolds in compact 2-point homogeneous spaces, and orbital integrals in isotropic Lorentzian manifolds. A final chapter deals with Fourier transforms and distributions, developing all the tools needed in the work.

Analyse fonctionnelle et théorie des opérateurs

Richard BECKER. — **Cônes convexes en analyse.** — Postface de Gustave Choquet. — Travaux en cours, vol. 59. — Un vol. broché, 17,5×24,5, de 245 p. — ISBN 2-7056-6384-3. — Prix: FF 180.00. — Hermann, Paris, 1999.

Cette monographie expose la théorie de la représentation intégrale dans les cônes convexes, due à G. Choquet, et plusieurs de ses applications à l'analyse: théorèmes classiques de Bochner-Weil et de Bernstein, théorème de Choquet-Deny, axiomatiques de Brelot et Bauer en théorie du potentiel, résultats de Talagrand sur les mesures et capacités invariantes, et de Royer et Yor sur les mesures quasi-invariantes en théorie des champs. Cette théorie est étudiée également pour son intérêt propre, et ses liens avec des disciplines voisines de l'analyse: étude des zonoformes et des mesures vectorielles, théorie de la décision statistique, cônes biréticulés et structure des cônes normaux dans un Banach. Une maîtrise d'université orientée vers l'analyse suffit pour aborder cette monographie.

William O. BRAY, Časlav V. STANOJEVIĆ, (Editors). — **Analysis of divergence: control and management of divergent processes.** — Applied and numerical harmonic analysis. — Un vol. relié, 16,5×24,5, de XX, 567 p. — ISBN 0-8176-4058-4. — Prix: SFr. 138.00. — Birkhäuser, Boston, 1999.

Divergent processes are at the core of classical and modern mathematical analysis and the careful control and management of these processes are essential. This new book is a comprehensive survey of new results, analysis, and applications for the study of divergent processes. It covers a broad range of topics including summability, Fourier series, wavelet transform, singular integrals, spectral theory and asymptotics. It is an essential resource for pure and applied mathematicians working in the areas of functional analysis, singular integrals, variational problems, signal analysis and wavelet analysis.

Jaroslav DITTRICH, Pavel EXNER, Miloš TATER, (Editors). — **Mathematical results in quantum mechanics.** — QMath7 Conference, Prague, June 22-26, 1998. — Operator theory advances and applications, vol. 108. — Un vol. relié, 17,5×24, de x, 393 p. — ISBN 3-7643-6097-6. — Prix: SFr. 158.00. — Birkhäuser, Basel, 1999.

This book contains the proceedings of the QMath7 Conference on Mathematical Results in Quantum Mechanics held in Prague, Czech Republic, from June 22 to 26, 1998. The purpose is to draw attention to recent developments in quantum mechanics stemming from its numerous applications, and to related mathematical problems and techniques. This volume is addressed to the broad audience of mathematicians and physicists interested in contemporary quantum physics and associated mathematical questions. The reader will find new results on Schrödinger and Pauli operators with regular, fractal or random potentials, scattering theory, adiabatic analysis, as well as on interesting new physical systems such as photonic crystals, quantum dots and wires.

Francis HIRSCH, Gilles LACOMBE. — **Elements of functional analysis.** — Graduate texts in mathematics, vol. 192. — Un vol. relié, 16×24, de XIV, 393 p. — ISBN 0-387-98524-7. — Prix: DM 98.00 — Springer, New York, 1999.

This is a graduate text on functional analysis. After presenting the fundamental function spaces and their duals, the authors study topics in operator theory and finally develop the theory of distributions up to significant applications such as Sobolev spaces and Dirichlet problems. Along the way, the reader is presented with a truly remarkable assortment of well-formulated and interesting exercises, which test the understanding as well as point out many related topics. The answers and hints that are not already contained in the statements of the exercises are collected at the end of the book.

J. KĄKOL, N. DE GRANDE-DE KIMPE, C. PEREZ-GARCIA, (Eds.). — ***p*-adic functional analysis.** — Lecture notes in pure and applied mathematics, vol. 207. — Un vol. broché, 17×25,5, de VIII, 331 p. — ISBN 0-8247-8254-2. — Prix: US$ 165.00. — Marcel Dekker, New York, 1999.

Presenting the proceedings of the Fifth International Conference on p-adic Functional Analysis held recently in Poznań, Poland, the book analyzes zero-dimensional Hausdorff spaces and certain locally convex (or strict) topologies... covers analytic functions and their properties in regard to Fourier transforms and the classical Paley-Wiener theorem... examines applications of the class of norm Hilbert spaces (Banach spaces for which closed subspaces admit projections of norm < 1)... demonstrates generalizations to spherically complete fields from results proved in locally compact fields... and more

Gilles PISIER. — **The volume of convex bodies and Banach space geometry.** — Cambridge tracts in mathematics, vol. 94. — Un vol. broché, 15,5×23, de XV, 250 p. — ISBN 0-521-66635-X. — Prix: £17.95. — Cambridge University Press, Cambridge, 1999.

Now in paperback, this book aims to give a self-contained presentation of a number of recent results, which relate the volume of convex bodies in n-dimensional Euclidean space and the geometry of the corresponding finite-dimensional normed spaces. The methods employ classical ideas from the theory of convex sets, probability theory, approximation theory and the local theory of Banach spaces. The book is in two parts. The first presents self-contained proofs of the quotient of the subspace theorem, the inverse Santalo inequality and the inverse Brunn-Minkowski inequality. The second part gives a detailed exposition of the recently introduced classes of Banach spaces of weak cotype 2 or weak type 2, and the intersection of the classes (weak Hilbert space). The book is based on course given in Paris and in Texas.