

# Analyse fonctionnelle et théorie des opérateurs

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## ***Equations intégrales***

Martin VATH. — **Volterra and integral equations of vector functions.** — Pure and applied mathematics, vol. 224. — Un vol. relié, 16×23, de VI, 349 p. — ISBN 0-8247-0342-1. — Prix: US\$ 150.00. — Marcel Dekker, New York, 2000.

This reference book develops and applies topological and algebraic methods to the study of abstract Volterra operators and differential equations arising in models for “real-world” phenomena in physics, biology and a host of other disciplines. The book studies general operator equations in which the operators are assumed to have “Volterra typical” properties... proves abstract results on the continuous dependence of the solution on parameters... considers functions that take values in infinite dimensional Banach spaces... focuses on the existence and uniqueness of solutions... surveys the Hausdorff measure of noncompactness and fixed point theory, etc.

## ***Analyse fonctionnelle et théorie des opérateurs***

Klaus-Jochen ENGEL, Rainer NAGEL. — **One-parameter semigroups for linear evolution equations.** — Graduate texts in mathematics, vol. 194. — Un vol. relié, 16,5×24,5, de XXI, 586 p. — ISBN 0-387-98463-1. — Prix: DM 98.00. — Springer, New York, 2000.

This book gives an up-to-date account of the theory of strongly continuous one-parameter semigroups of linear operators. It includes a systematic discussion of the spectral theory and the long-term behavior of such semigroups. A special feature of the text is an unusually wide range of applications, to ordinary and partial differential operators, delay and Volterra equations and to control theory, etc..., and an emphasis on philosophical motivation and the historical background. This book is written for students, but should also be of value for researchers interested in this field.

Francis HIRSCH, Gilles LACOMBE. — **Éléments d'analyse fonctionnelle: cours et exercices.** — Enseignement des mathématiques (Masson). — Sciences sup. Cours. Mathématiques (Dunod). — Un vol. broché, 16×24, de IX, 339 p. — ISBN 2-225-85573-0. — Prix: FF 215.00. — Masson, Paris, 1997, diffusé par Dunod, Paris et en Suisse par Havas Services Suisse, Fribourg.

Cet ouvrage est composé de 3 parties: Espaces fonctionnels et leurs duals (espaces de fonctions continues, mesures de Radon, espaces de Hilbert, espaces  $L^p$ . — Opérateurs (théorie spectrale, opérateurs complets). — Distributions (convolution, espaces de Sobolev  $W^{l,p}$ , problème de Dirichlet). La part importante réservée aux exercices est l'une des originalités de l'ouvrage. Ils sont rédigés sous forme d'énoncés détaillés incluant des indications destinées à surmonter chaque difficulté.

Volodymyr KOSHMANENKO. — **Singular quadratic forms in perturbation theory.** — Mathematics and its applications, vol. 474. — Un vol. relié, 25×27, de VIII, 308 p. — ISBN 0-7923-5625-X. — Prix: Dfl. 275.00. — Kluwer Academic Publishers, Dordrecht, 1999.

This monograph is devoted to the systematic presentation of the method of singular quadratic forms in the perturbation theory of self-adjoint operators. The concept of a singular (nowhere closable) quadratic form, a key notion of the present volume, is treated from different points of view such as definition, properties, relations with regular (closable) quadratic forms, operator representation, classification in the scale of Hilbert spaces and especially as an object carrying a singular perturbation for Hamiltonians. The main idea is to interpret singular quadratic form in the role of an abstract boundary condition for self-adjoint extension.

E. RAMÍREZ DE ARELLANO, M.V. SHAPIRO, L.M. TOVAR, N.L. VASILEVSKI, (Editors). — **Complex analysis and related topics.** — Operator theory advances and applications, vol. 114. — Un vol. relié, 17,5×24, de 284 p. — ISBN 3-7643-6228-6. — Prix: SFr. 138.00. — Birkhäuser, Basel, 2000.

This volume is a collection of up-to-date research and expository papers on different aspects of complex analysis, including relations to operator theory and hypercomplex analysis. The articles cover many important and essential subjects, such as the Schrödinger equation, sub-elliptic operators, Lie algebras and superalgebras, Toeplitz and Hankel operators, reproducing kernels and  $\mathbf{Q}_p$  spaces, among others. Most of the papers were presented at the International Symposium on Complex Analysis and Related Topics, held in Cuernavaca (Morelos), Mexico, in November 1996.

Jürgen ROSSMANN, Peter TAKÁČ, Günther WILDENHAIN, (Editors). — **The Maz'ya anniversary collection, volume 1: On Maz'ya's work in functional analysis, partial differential equations and applications.** — Operator theory advances and applications, vol. 109. — Un vol. relié, 17,5×24, de XII, 364 p. — ISBN 3-7643-6201-4. — Prix: SFr. 198.00. — Birkhäuser, Basel, 1999.

V.G. Maz'ya is author or co-author of more than 300 scientific works on various fields of functional analysis, function theory, numerical analysis, partial differential equations and their applications. This collection of articles in two volumes is dedicated to him on the occasion of his 60<sup>th</sup> birthday. This first volume contains surveys on his work in different fields of mathematics or on areas to which he made essential contributions. Other articles of this book have their origin in the common work with Maz'ya.

Jürgen ROSSMANN, Peter TAKÁČ, Günther WILDENHAIN, (Editors). — **The Maz'ya anniversary collection, volume 2: Rostock Conference on Functional Analysis, Partial Differential Equations and Applications.** — Operator theory advances and applications, vol. 110. — Un vol. relié, 17,5×24, de XVI, 352 p. — ISBN 3-7643-6202-2. — Prix: SFr. 198.00. — Birkhäuser, Basel, 1999.

This is the second volume of a collection of articles dedicated to V.G. Maz'ya on the occasion of his 60<sup>th</sup> birthday. It contains most of the invited lectures of the Conference on Functional Analysis, Partial Differential Equations and Applications held in Rostock in September 1998 in honor of V.G. Maz'ya. Here different problems of functional analysis, potential theory, linear and nonlinear partial differential equations, theory of function spaces and numerical analysis are treated. The authors, who are outstanding experts in these fields, present surveys as well as new results.

## **Géométrie**

Michel ALESSANDRI. — **Thèmes de géométrie: groupes en situation géométrique.** — Agrégation de mathématiques. — Un vol. broché, 17×24, de 254 p. — ISBN 2-10-004556-3. — Prix: FF 175.00. — Dunod, Paris, 1999, diffusé en Suisse par Havas Services Suisse, Fribourg.

La première partie de ce livre développe et illustre abondamment le langage géométrique des actions de groupes. La seconde propose quatre thèmes de réflexion présentés sous la forme de problèmes dont les niveaux sont variés et dont le corrigé très détaillé est largement commenté: deux aspects géométriques du groupe modulaire; les sous-groupes de torsion des groupes linéaires; quelques réflexions sur la géométrie vectorielle euclidienne; une introduction