Anneaux et algèbres

developed along the way. The book is aimed at advanced undergraduate and first-year graduate master's students taking courses in linear algebra, linear models, multivariate analysis, and design of experiments. It should also be of use to research mathematicians and statisticians as a source of standard results and problems.

Anneaux et algèbres

Stefaan CAENEPEEL, Freddy VAN OYSTAEYEN, (Editors). — **Hopf algebras and quantum groups: proceedings of the Brussels Conference.** — Lecture notes in pure and applied mathematics, vol. 209. — Un vol. broché, 17,5×25,5, de XII, 309 p. — ISBN 0-8247-0395-2. — Prix: US$165.00. — Marcel Dekker, New York, 2000.

Based on the proceedings of a recently held conference at the Free University of Brussels, Belgium, this book presents state-of-the-art papers on the theory of Hopf algebras, including multiplier Hopf algebras, and quantum groups. The work examines Nichols algebras and pointed Hopf algebras, cross product bialgebras, graded coalgebras, coalgebra-Galois extensions, Doi-Hopf modules, cyclic cohomology, Schur-Weyl categories, classical Lie superalgebras, finite-dimensional quantum groupoids, and more.

Roberto COSTA, Alexander GRISHKOV, Henrique GUZZO, Jr., Luiz A. PERESI, (Editors). — **Nonassociative algebra and its applications: the fourth International Conference.** — Un vol. broché, 17,5×25,5, de XII, 469 p. — ISBN 0-8247-0406-1. — Prix: US$185.00. —Marcel Dekker, New York, 2000.

This volume collects lectures presented at the fourth International Conference on Nonassociative Algebra and Its Applications held in São Paulo, Brazil, on topics including alternative, Jordan, Lie and Bernstein and Malcev algebras and superalgebras. The book reviews Petit's construction, giving proof of his existence criteria, discusses the problem of the classification of the extensions of Virasoro algebra, illustrates how a Lie-theoretic result of Zelmanov relates to group theory, describes geometric properties of smooth quasigroups defined by the left square distributive identity, reviews the construction of Toda-type equations in low- and high-dimensional spaces, studies the subloop structure of the smallest simple Moufang loop, surveys results concerning polynomial identities of quadratic algebras, and more.

Uwe FRANZ, René SCHOTT. — **Stochastic processes and operator calculus on quantum groups.** — Mathematics and its applications, vol. 490. — Un vol. relié, 16×25, de VII, 227 p. — ISBN 0-7923-5883-X. — Prix: Dfl. 187.00. — Kluwer Academic Publishers, Dordrecht, 1999.

This book aims to present several new developments on stochastic processes and operator calculus on quantum groups. Topics which are treated include operator calculus, dual representations, stochastic processes and diffusions, Appell polynomials and systems in connection with evolution equations. This volume contains introductory material for graduate students who are new in the field, as well as more advanced material for specialists in probability theory, algebraic structures, representation theory, mathematical physics and theoretical physics.

Tonny A. SPRINGER, Ferdinand D. VELDKAMP. — **Octonions, Jordan algebras and exceptional groups.** — Springer monographs in mathematics. — Un vol. relié, 16×24, de VIII, 208 p. — ISBN 3-540-66337-1. — Prix: DM 139.00. — Springer, Berlin, 2000.

The 1963 Göttingen notes of T.A. Springer are well-known in the field but have been unavailable for some time. This book is a translation of those notes, completely updated and revised. The part of the book dealing with the algebraic structures is on a fairly elementary level, presupposing basic results from algebra. In the group-theoretical part, use is made of some results from the theory of linear algebraic groups. The book will be useful to mathematicians interested in octonion algebras and Albert algebras, or in exceptional groups.

Freddy VAN OYSTAEYEN. — **Algebraic geometry for associative algebras.** — Pure and applied mathematics, vol. 232. — Un vol. broché, 15,5×23,5, de VI, 286 p. — ISBN 0-8247-0424-X. — Prix: US$145.00. — Marcel Dekker, New York, 2000.

This innovative reference/text facilitates the origin of a noncommutative topology that provides, for the first time, the possibility to define an underlying space where geometric properties can be phrased and studied—resulting in a scheme theory that sustains the duality between algebraic geometry and commutative algebra to the noncommutative level. It constructs the scheme theory from the interaction between graded and filtered algebras appearing as a general deformation principle among geometries. *Algebraic Geometry for Associative Algebras* fully introduces noncommutative topology, deformation of structure schemes, new cohomological methods, homological algebra and regularity conditions, divisor theory using noncommutative valuations, reductions of algebras, microlocalization and quantum sections, formal completion along subvarieties, and more.

Freddy VAN OYSTAEYEN, Manuel SAORIN, (Editors). — **Interactions between ring theory and representations of algebras: proceedings of the conference held in Murcia, Spain.** — Lecture notes in pure and applied mathematics, vol. 210. — Un vol. broché, 17,5×25,5, de VIII, 449 p. — ISBN 0-8247-0367-7. — Prix: US$185.00. —Marcel Dekker, New York, 2000.

Based on a set of lectures and invited papers presented at a recently held meeting in Murcia, Spain, organized by the European Commission's Training and Mobility of Researchers Programme, this monograph contains up-to-date information on the structure of representation theory of groups and algebras and on general ring theoretic methods related to the theory. This title provides a wide selection of international viewpoints on Artin, path, matrix, group, Noetherian semigroup, and Hopf and multiplier Hopf algebras, quantized coordinate and quantum determinantal rings, Maranda's and duality theorems, prime spectra and ideals, and associated primes and weakly associated primes, Cohen-Macaulay, D-Gorenstein, static and $A_1(k)$-modules, as well as covers and envelopes of modules, and more.

Catégories, algèbre homologique, cohomologie des groupes

M. Scott OSBORNE. — **Basic homological algebra.** — Graduate texts in mathematics, vol. 196. — Un vol. broché, 16×24, de X, 395 p. — ISBN 0-387-98934-X. — Prix: DM 98.00. — Springer, New York, 2000.

This book is intended for one-quarter, two-quarter, or one-semester courses in homological algebra. The aim is to cover Ext and Tor early and without distraction. It includes several further topics, which can be pursued independently of each other. Many of these, such as Lazard's theorem, long exact sequences in Abelian categories, the Ext product, or the relation between Krull dimension and global dimension, are hard to find elsewhere. The intended audience is second- or third-year graduate students in algebra, algebraic topology, or any other field that uses homological algebra.

K théorie

A.J. BERRICK and M.E. KEATING. — **Categories and modules: with *K*-theory in view.** — Cambridge studies in advanced mathematics, vol. 67. — Un vol. relié, 15,5×23,5, de XVII, 361 p. — ISBN 0-521-63276-5. — Prix: £35.00. — Cambridge University Press, Cambridge, 2000.

This book develops aspects of category theory fundamental to the study of algebraic *K*-theory. Ring and module theory illustrates category theory which provides insight into more advanced topics in module theory. Starting with categories in general, the text then examines