

Anneaux et algèbres

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LOU VAN DEN DRIES. — **Tame topology and o-minimal structures.** — London Mathematical Society lecture note series, vol. 248. — Un vol. broché, $15,5 \times 23$, de x; 180 p. — ISBN 0-521-59838-9. — Prix: £24.95. — Cambridge University Press, Cambridge, 1998.

These notes give a self-contained treatment of the theory of o-minimal structures from a geometric and topological viewpoint, assuming only rudimentary algebra and analysis. The book starts with an introduction and overview of the subject. Later chapters cover the monotonicity theorem, cell decomposition, and the Euler characteristics in the o-minimal setting and show how these notions are easier to handle than in ordinary topology. The remarkable combinatorial property of o-minimal structures, the Vapnik-Chervonenkis property, is also covered.

Algèbre linéaire et multilinéaire, théorie des matrices

Jin Ho KWAK, Sungpyo HONG. — **Linear algebra.** — Un vol. relié, $17,5 \times 25$, de ix, 369 p. — ISBN 0-8176-3999-3. — Prix: SFr. 48.00. — Birkhäuser, Boston, 1997.

Linear algebra continues to be one of the most useful courses in undergraduate mathematics, science and engineering, and one of the essential tools for industrial scientists. The primary aim of this book is to give a clear and rigorous presentation of the basic concepts of linear algebra as a coherent part of mathematics. At the same time, by emphasizing computational skills along with mathematical abstractions, the authors illustrate linear algebra's power and usefulness in its applications to such other disciplines as physics, computer science, and economics. The book contains many important examples, explanations and problems right in the middle of the text.

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Paul E. BLAND. — **Topics in torsion theory.** — Mathematical research, vol. 103. — Un vol. broché, 17×24 , de 160 p. — ISBN 3-527-40131-8. — Prix: DM 128.00. — Wiley-VCH, Berlin, 1998.

The purpose of this book is to provide the reader with a quick introduction to torsion theory and to study selected properties of rings and modules in this setting. The material presented ranges from a torsion theoretical treatment of standard topics in ring and module theory to how previously untreated properties of rings and modules might be dealt with in this setting. The approach has been to develop the material so that classical results can be recovered by selecting an appropriate torsion theory. Torsion free covers are also studied and results are given which generalize well-known results on torsion free covers for modules (with usual torsion) over an integral domain.

Winfried BRUNS and Jürgen HERZOG. — **Cohen-Macaulay rings.** — Revised edition. — Cambridge studies in advanced mathematics, 39. — Un vol. broché, 15×23 , de xiv, 453 p. — ISBN 0-521-56674-6. — Prix: £24.95. — Cambridge University Press, Cambridge, 1998.

This book meets the need for a thorough, self-contained introduction to the homological and combinatorial aspects of the theory of Cohen-Macaulay rings, Gorenstein rings, local cohomology, and canonical modules. A separate chapter is devoted to Hilbert functions (including Macaulay's theorem) and numerical invariants derived from them. Throughout each chapter the authors have supplied many examples and exercises, which combined with the expository style, will make the book very useful for graduate courses in algebra. As the only modern, broad account of the subject, it will be essential reading for specialists as well.

Stefaan CAENEPEEL. — **Brauer groups, Hopf algebras and Galois theory.** — *K-monographs in mathematics*, vol. 4. — Un vol. relié, 17×24,5, de xvi, 488 p. — ISBN 0-7923-4829-X. — Prix: Dfl. 345.00. — Kluwer Academic Publishers, Dordrecht, 1998.

This volume is devoted to the Brauer group of a commutative ring and related invariants. Part I presents a new self-contained exposition of the Brauer group of a commutative ring. Included is a systematic development of the theory of Grothendieck topologies and étale cohomology, and discussion of topics such as Gabber's theorem and the theory of Taylor's big Brauer group of algebras without a unit. Part II presents a systematic development of the Galois theory of Hopf algebras with special emphasis on the group of Galois objects of a cocommutative Hopf algebra. The Brauer-Long group of a Hopf algebra over a commutative ring is discussed in Part III.

Grigore CALUGAREANU, Peter HAMBURG. — **Exercises in basic ring theory.** — *Kluwer texts in the mathematical sciences*, vol. 20. — Un vol. relié, 16,5×25, de xiv, 198 p. — ISBN 0-7923-4918-0. — Prix: Dfl. 160.00. — Kluwer Academic Publishers, Dordrecht, 1998.

This book contains almost 350 exercises in the basics of ring theory. The problems form the "folklore" of ring theory, and the solutions are given in as much detail as possible. This makes the work ideally suited for self-study. Subjects treated include zero divisors, ring homomorphisms, divisibility in integral domains, division rings, automorphisms, the tensor product, artinian and noetherian rings, socle and radical rings, semisimple rings, polynomial rings, rings of quotients, and rings of continuous functions.

A.W. CHATTERS, C.R. HAJARNAVIS. — **An introductory course in commutative algebra.** — *Oxford science publications*. — Un vol. relié, 16,5×24, de vii, 144 p. — ISBN 0-19-853423-X. — Prix: £30.00. — Clarendon Press, Oxford, 1998.

This book is a concise and carefully written introduction to topics in commutative algebra, with an emphasis on worked examples and applications. The elegant algebraic theory is combined with applications to number theory, problems in classical Greek geometry, and the theory of finite fields, which has important uses in other branches of science. Topics covered include an introduction to rings and Euclidean rings, UFDs and PIDs, factorization of polynomials, fields and field extensions, and algebraic numbers.

Vesselin S. DRENSKY, Antonio GIAMBRUNO, Sudarshan SEHGAL, (Editors). — **Methods in ring theory: proceedings of the Trento conference.** — *Lecture notes in pure and applied mathematics*, vol. 198. — Un vol. broché, 18×25,5, de viii, 314 p. — ISBN 0-8247-0183-6. — Prix: US\$ 150.00. — Marcel Dekker, Inc., New York, 1998.

Extensive in its coverage of the subject, this book examines broad themes from ring theory and its relation with other branches of algebra, including actions of groups and Hopf algebras, modular group algebras, combinatorics of Young diagrams, growth of algebras, groups of units of group rings, structure theory of group algebras, representation theory of groups and algebras, invariant theory, commutative algebra, theory of superalgebras, varieties of Lie algebras, Kac-Moody algebras, structure of varieties in characteristic p ... and more.

Catégories, algèbre homologique, cohomologie des groupes

John L. BELL. — **A primer of infinitesimal analysis.** — Un vol. relié, 15,5×23,5, de xiii, 122 p. — ISBN 0-521-62401-0. — Prix: £19.95. — Cambridge University Press, Cambridge, 1998.

In this book basic calculus together with some of its applications to simple physical problems, are presented through the use of a straightforward, rigorous axiomatically formulated