

Anneaux et algèbres

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Kenji MATSUKI. — **Introduction to the Mori Program.** — Universitext. — Un vol. relié, 16×24, de XXIII, 478 p. — ISBN 0-387-98465-8. — Prix: € 74.95. — Springer, New York, 2002.

The purpose of this book is to give a comprehensible account of what is called the Mori Program, a fusion of the so-called Minimal Model Program and the Iitaka Program toward the biregular and/or birational classification of higher-dimensional algebraic varieties. The author presents this theory in an easy and understandable way with lots of background motivation: the Enriques classification of algebraic surfaces is given in the framework of the Mori Program. Prerequisites are those covered in Robin Hartshorne's book, *Algebraic Geometry*. It is the first "friendly" book in this extremely important and active area of research and will become a key resource for graduate students wanting to enter this area.

Algèbre linéaire et multilinéaire, théorie des matrices

T. S. BLYTH, E. F. ROBERSTON. — **Further linear algebra.** — Springer undergraduate mathematics series. — Un vol. broché, 17×24, de 230 p. — ISBN 1-85233-425-8. — Prix: € 34.95. — Springer, London, 2002.

Further Linear Algebra is a natural sequel to the authors' highly acclaimed SUMS volume *Basic Linear Algebra*. The more advanced topics covered here take the reader to the very heart of the subject, and include inner product spaces, direct sums of subspaces, the primary decomposition theorem and various canonical forms for matrices. Furthermore, the authors provide a brief introduction to the use of MAPLE in linear algebra calculations, and biographical profiles of eminent mathematicians associated with the subject. An introductory chapter recaps the prerequisites (for those readers unfamiliar with the first volume), and a wide range of worked examples and exercises (with solutions) are strategically placed throughout the text to consolidate understanding.

Robert C. DALANG, Amel CHAABOUNI. — **Algèbre linéaire: aide-mémoire, exercices et applications.** — Enseignement des mathématiques. — Un vol. broché, 16×24, de XII, 319 p. — ISBN 2-88074-483-0. — Prix: SFr. 93.90. — Presses polytechniques et universitaires romandes, Lausanne, 2001.

Ce volume présente d'abord les notions d'algèbre linéaire indispensables aux étudiants ingénieurs et généralement abordées au cours de la première année du cycle universitaire. Chaque chapitre est accompagné d'une grande variété d'exercices et de leur corrigé. Cette matière est ensuite illustrée par cinq applications de l'algèbre linéaire à des thèmes qui sont de nature à montrer à l'étudiant l'utilité de la théorie. Comment dessiner une fractale ou réaliser un stéréogramme? Que sont les codes correcteurs d'erreurs, ou les premières techniques de cryptographie? Qu'est-ce qu'une chaîne de Markov? Ces sujets, qui utilisent de près les notions d'algèbre linéaire, sont abordés de manière accessible et sont également accompagnés d'exercices.

Anneaux et algèbres

Flávio Ulhoa COELHO, Héctor A. MERKLEN, (Editors). — **Representations of algebras.** — Proceedings of the conference held in São Paulo. — Lecture notes in pure and applied mathematics, vol. 224. — Un vol. broché, 18×26, de XVII, 282 p. — ISBN 0-8247-0733-8. — Prix: US\$ 150.00. — Marcel Dekker, New York, 2002.

Containing papers selected from over 70 participants representing 17 countries, *Representations of Algebras* considers the existence of almost split morphisms and sequences... describes strongly simply connected derived tubular algebras... explores relationships between Koszul algebras and the Gorenstein condition... characterizes hereditary Noetherian categories

containing simple objects... details coil algebras whose repetitive algebra is tame... analyzes Hopf algebras... and more.

Shahn MAJID. — **A quantum groups primer.** — London Mathematical Society lecture note series, vol. 292. — Un vol. relié, 23 × 15, de x, 169 p. — ISBN 0-521-01041-1. — Prix: £ 24.95. — Cambridge University Press, Cambridge, 2002.

This book provides a self-contained introduction to quantum groups as algebraic objects. Based on the author's lecture notes for a Part III pure mathematics course at Cambridge University, it is suitable for use as a textbook for graduate courses in quantum groups or as a supplement to modern courses in advanced algebra. The book assumes a background knowledge of basic algebra and linear algebra. Some familiarity with semisimple Lie algebras would also be helpful. The book is aimed as a primer for mathematicians interested in quantum groups, algebraic groups, knot theory and noncommutative geometry, but will also be useful for mathematical physicists.

Théorie des groupes et généralisations

Michael J. COLLINS, Brian J. PARSHALL, Leonard L. SCOTT, (Editors). — **Modular representation theory of finite groups.** — Proceedings of a Symposium held at the University of Virginia, Charlottesville, Virginia, May 8-15, 1998. — Un vol. relié, 18 × 25, de XII, 262 p. — ISBN 3-11-016367-5. — Prix: € 108.00. — Walter de Gruyter, Berlin, 2001.

The thrust of the book is towards the q -Schur algebra methods and the functorial methods that have been developed in recent years both for the study of representations of finite groups of Lie type in nondefining characteristic and for the abstract study of blocks of group algebras, the two predominant themes of the Symposium. Some results, and all references, have been updated since the Symposium so that this book, through its own content and with its extensive bibliographies, will serve as an invaluable resource both for established researchers and for graduate students who wish to gain a wide general knowledge of the subject starting from a single source.

A. A. IVANOV and S. V. SHPECTOROV. — **Geometry of sporadic groups II: representations and amalgams.** — Encyclopedia of mathematics and its applications, vol. 91. — Un vol. relié, 16 × 23,5, de XVIII, 286 p. — ISBN 0-521-62349-9. — Prix: £ 50.00. — Cambridge University Press, Cambridge, 2002.

The two-volume set of this work provides a complete self-contained proof of the classification of geometries associated with sporadic simple groups: Petersen and tilde geometries. This volume contains a study of the representations of the geometries under consideration in $GF(2)$ -vector spaces as well as in some non-Abelian groups. The central part is the classification of the amalgam of maximal parabolics, associated with a flag transitive action on a Petersen or tilde geometry. The classification is based on the method of group amalgams, the most promising tool in modern finite group theory. Through systematic treatment of group amalgams, the authors establish a deep and important mathematical result.

Péter T. NAGY, Karl STRAMBACH. — **Loops in group theory and Lie theory.** — De Gruyter expositions in mathematics, vol. 35. — Un vol. relié, 25 × 18, de XI, 361 p. — ISBN 3-11-017010-8. — Prix: € 148.00. — Walter de Gruyter, Berlin, 2002.

In this book the theory of binary systems is considered as a part of group theory and, in particular, within the framework of Lie groups. The novelty is the consequent treatment of topological and differentiable loops as topological and differentiable sections in Lie groups. The interplay of methods and tools from group theory, differential geometry, and the theory of foliations is what gives a special flavour to the results presented in this book. It is the first monograph