developments and recent advances in commutative algebra, algebraic geometry, and combinatorics — highlighting the theory of projective schemes, the geometry of curves in P^n, determinantal and stable ideals, and free resolutions. With contributions by over 40 leading international mathematicians, the book thoroughly discusses current trends in singularity and tight closure theory... Hilbert functions of squarefree Veronese rings... Gröbner bases as characteristic sets... local monomialization... families of Wronskian correspondences... and more.

Karen E.SMITH, Lauri KAHANPÄÄ, Pekka KEKÄLÄINEN, William TRAVES. — **An invitation to algebraic geometry.** — Universitext. — Un vol relié, 16×24, de XII, 155 p. — ISBN 0-387-98980-3. — Prix : DM 64.00. — Springer, New York, 2000.

The aim of this book is to describe the underlying principles of algebraic geometry, some of its important developments in the twentieth century, and some of the problems that occupy its practitioners today. It is intended for the working or the aspiring mathematician who is unfamiliar with algebraic geometry but wishes to gain an appreciation of its foundations and its goals with a minimum of prerequisites. Few algebraic prerequisites are presumed beyond a basic course in linear algebra.

Arno VAN DEN ESSEN. — **Polynomial automorphisms and the Jacobian conjecture.** — Progress in mathematics, vol. 190. — Un vol. relié, 16×24, de XVIII, 329 p. — ISBN 3-7643-6350-9. — Prix : SFr. 98.00. — Birkhäuser, Basel, 2000.

Motivated by some notorious open problems, such as the Jacobian conjecture and the tame generators problem, the subject of polynomial automorphisms has become a rapidly growing field of interest. This book, the first in the field, collects many of the results scattered throughout the literature. It introduces the reader to a fascinating subject and brings him to the forefront of research in this area. Some of the topics treated are invertibility criteria, face polynomials, the tame generators problem, the cancellation problem, exotic spaces, DNA for polynomial automorphisms, the Abhyankar-Moh theorem, stabilization methods, dynamical systems, the Markus-Yamabe conjecture, group actions, Hilbert's 14th problem, various linearization problems and the Jacobian conjecture. The work is essentially self-contained and aimed at the level of beginning graduate students. Exercises are included at the end of each section. At the end of the book there are appendices to cover used material from algebra, algebraic geometry, D-modules and Gröbner basis theory. A long list of «strong» examples and an extensive bibliography conclude the book.

Anneaux et algèbres

Sorin DĂSCĂLESCU, Constantin NĂSTĂSESCU, Şerban RAIANU. — **Hopf algebras: an introduction.** — Pure and applied mathematics, vol. 235. — Un vol. relié, 15,5×23,5, de IX, 401 p. — ISBN 0-8247-0481-9. — Prix : US$ 150.00. — Marcel Dekker, New York, 2000.

Addressing a wide array of algebraic properties related to Hopf algebras, this introductory reference text summarizes key topics, theories, and relevant features in the field utilizing the easy-to-understand language of category theory... Covering an extensive range of material with clarity and precision, *Hopf Algebras* features in-depth discussions of basic concepts, classes, and theories for algebras, coalgebras, and comodules... the categories, integrals, actions, and coactions of Hopf algebras... special classes of coalgebras such as semiperfect, co-Frobenius, cosemisimple, and pointed algebras... different sets of behavior for dual notions of coalgebras and comodule... the Nichols-Zoeller, Taft-Wilson, and Kac-Zhu theorems... and more.

Mitsuyasu HASHIMOTO. — **Auslander-Buchweitz approximations of equivariant modules.** — London Mathematical Society lecture note series, vol. 282. — Un vol. broché, 15×23, de XVI, 281 p. — ISBN 0-521-79696-2 — Prix: £27.95. — Cambridge University Press, Cambridge, 2000.

This book focuses on homological aspects of equivariant modules. It presents a new homological approximation theory in the category of equivariant modules, unifying the Cohen-Macaulay approximations in commutative ring theory and Ringel's theory of delta-good approximations for quasi-hereditary algebras and reductive groups. The book provides a detailed introduction to homological algebra, commutative ring theory and homological theory of comodules of coalgebras over an arbitrary base. It aims to overcome the difficulty of generalising known homological results in representation theory. This book will be of interest to researchers and graduate students in algebra, specialising in commutative ring theory and representation theory.

Henning KRAUSE, Claus Michael RINGEL, (Editors). — **Infinite length modules.** — Trends in mathematics. — Un vol. relié, 17×24, de IX, 439 p. — ISBN 3-7643-6413-0. — Prix: SFr. 168.00. — Birkhäuser, Basel, 2000.

This book is concerned with the role played by modules of infinite length when dealing with problems in the representation theory of groups and algebras, but also in topology and geometry, showing the intriguing interplay between finite and infinite length modules. The volume presents the invited lectures of a conference held in Bielefeld in September 1998, which brought together experts from quite different schools in order to survey surprising relations between algebra, topology and geometry. Some additional reports have been included in order to establish a unified picture. The collection of articles, written by well-known experts from all parts of the world, is conceived as a sort of handbook which provides an easy access to the present state of knowledge and its aim is to stimulate further development.

R.Y. SHARP. — **Steps in commutative algebra.** — Second edition. — London Mathematical Society student texts, vol. 51. — Un vol. broché, 15×23, de XI, 355 p. — ISBN 0-521-64623-5. — Prix: £17.95. — Cambridge University Press, Cambridge, 2000.

This introductory account of commutative algebra is aimed at advanced undergraduates and first year graduate students. Assuming only basic abstract algebra, it provides a good foundation in commutative ring theory, from which the reader can proceed to more advanced works in commutative algebra and algebraic geometry. The style throughout is rigorous but concrete, with exercises and examples given within chapters, and hints provided for the more challenging problems used in the subsequent development. After reminders about basic material on commutative rings, ideals and modules are extensively discussed, with applications including canonical forms for square matrices. The core of the book discusses the fundamental theory of commutative Noetherian rings. Affine algebras over fields, dimension theory and regular local rings are also treated, and for this second edition two further chapters, on regular sequences and Cohen–Macaulay rings, have been added.

Catégories, algèbre homologique, cohomologie des groupes

Amnon NEEMAN. — **Triangulated categories.** — Annals of mathematics studies, vol. 148. — Un vol. broché, 15,5×23,5, de VII, 449 p. — ISBN 0-691-08686-9. — Prix: US$35.00. — Princeton University Press, Princeton, N.J., 2001.

The first two chapters of this book offer a modern, self-contained exposition of the elementary theory of triangulated categories and their quotients. The simple, elegant presentation of