

Commutative Algebra With A View Toward Algebraic G

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2023-03-05

CHERRY ALICIA

Combinatorial Commutative Algebra CRC Press

This volume contains papers presented at the International Conference on Commutative Algebra, Algebraic geometry, and Computational methods held in Hanoi in 1996, as well as papers written subsequently. It features both expository articles as well as research papers on a range of currently active areas in commutative algebra, algebraic geometry (particularly surveys on intersection theory) and combinatorics. In addition, a special feature is a section on the life and work of Wolfgang Vogel, who was an organiser of the conference.

[Computations in Algebraic Geometry with Macaulay 2](#) Courier Dover Publications

Rapid, concise, self-contained introduction assumes only familiarity with elementary algebra.

Subjects include algebraic varieties; products, projections, and correspondences; normal varieties; differential forms; theory of simple points; algebraic groups; more. 1958 edition.

(Mostly) Commutative Algebra Springer Nature

This volume collects contributions by leading experts in the area of commutative algebra related to the INdAM meeting "Homological and Computational Methods in Commutative Algebra" held in Cortona (Italy) from May 30 to June 3, 2016. The conference and this volume are dedicated to Winfried Bruns on the occasion of his 70th birthday. In particular, the topics of this book strongly reflect the variety of Winfried Bruns' research interests and his great impact on commutative algebra as well as its applications to related fields. The authors discuss recent and relevant developments in algebraic geometry, commutative algebra, computational algebra, discrete geometry and homological algebra. The book offers a unique resource, both for young and more experienced researchers seeking comprehensive overviews and extensive bibliographic references.

[A Course in Commutative Algebra](#) Springer Science & Business Media

An introduction to abstract algebraic geometry, with the only prerequisites being results from commutative algebra, which are stated as needed, and some elementary topology. More than 400 exercises distributed throughout the book offer specific examples as well as more specialised topics not treated in the main text, while three appendices present brief accounts of some areas of current research. This book can thus be used as textbook for an introductory course in algebraic geometry following a basic graduate course in algebra. Robin Hartshorne studied algebraic geometry with

Oscar Zariski and David Mumford at Harvard, and with J.-P. Serre and A. Grothendieck in Paris. He is the author of "Residues and Duality", "Foundations of Projective Geometry", "Ample Subvarieties of Algebraic Varieties", and numerous research titles.

Finite Projective Modules Courier Dover Publications

Commutative Algebra with a View Toward Algebraic Geometry Springer Science & Business Media

Introduction to Commutative Algebra and Algebraic Geometry Springer Science & Business Media

Translated from the popular French edition, this book offers a detailed introduction to various basic concepts, methods, principles, and results of commutative algebra. It takes a constructive viewpoint in commutative algebra and studies algorithmic approaches alongside several abstract classical theories. Indeed, it revisits these traditional topics with a new and simplifying manner, making the subject both accessible and innovative. The algorithmic aspects of such naturally abstract topics as Galois theory, Dedekind rings, Prüfer rings, finitely generated projective modules, dimension theory of commutative rings, and others in the current treatise, are all analysed in the spirit of the great developers of constructive algebra in the nineteenth century. This updated and revised edition contains over 350 well-arranged exercises, together with their helpful hints for solution. A basic knowledge of linear algebra, group theory, elementary number theory as well as the fundamentals of ring and module theory is required. Commutative Algebra: Constructive Methods will be useful for graduate students, and also researchers, instructors and theoretical computer scientists.

In Honor of Masayoshi Nagata World Scientific

Homological algebra first arose as a language for describing topological prospects of geometrical objects. As with every successful language it quickly expanded its coverage and semantics, and its contemporary applications are many and diverse. This modern approach to homological algebra, by two leading writers in the field, is based on the systematic use of the language and ideas of derived categories and derived functors. Relations with standard cohomology theory (sheaf cohomology, spectral sequences, etc.) are described. In most cases complete proofs are given. Basic concepts and results of homotopical algebra are also presented. The book addresses people who want to learn about a modern approach to homological algebra and to use it in their work.

Algebraic Geometry and Commutative Algebra World Scientific

Exploring ultraproducts of Noetherian local rings from an algebraic perspective, this volume illustrates the many ways they can be used in commutative algebra. The text includes an

introduction to tight closure in characteristic zero, a survey of flatness criteria, and more.

A Term of Commutative Algebra Springer Science & Business Media

This book is a companion volume to *Graduate Algebra: Commutative View* (published as volume 73 in this series). The main and most important feature of the book is that it presents a unified approach to many important topics, such as group theory, ring theory, Lie algebras, and gives conceptual proofs of many basic results of noncommutative algebra. There are also a number of major results in noncommutative algebra that are usually found only in technical works, such as Zelmanov's proof of the restricted Burnside problem in group theory, word problems in groups, Tits's alternative in algebraic groups, PI algebras, and many of the roles that Coxeter diagrams play in algebra. The first half of the book can serve as a one-semester course on noncommutative algebra, whereas the remaining part of the book describes some of the major directions of research in the past 100 years. The main text is extended through several appendices, which permits the inclusion of more advanced material, and numerous exercises. The only prerequisite for using the book is an undergraduate course in algebra; whenever necessary, results are quoted from *Graduate Algebra: Commutative View*.

Fuzzy Commutative Algebra Springer Science & Business Media

Originally published in 1985, this classic textbook is an English translation of *Einführung in die kommutative Algebra und algebraische Geometrie*. As part of the Modern Birkhäuser Classics series, the publisher is proud to make *Introduction to Commutative Algebra and Algebraic Geometry* available to a wider audience. Aimed at students who have taken a basic course in algebra, the goal of the text is to present important results concerning the representation of algebraic varieties as intersections of the least possible number of hypersurfaces and—a closely related problem—with the most economical generation of ideals in Noetherian rings. Along the way, one encounters many basic concepts of commutative algebra and algebraic geometry and proves many facts which can then serve as a basic stock for a deeper study of these subjects.

Local Algebra Springer Science & Business Media

First textbook-level account of basic examples and techniques in this area. Suitable for self-study by a reader who knows a little commutative algebra and algebraic geometry already. David Eisenbud is a well-known mathematician and current president of the American Mathematical Society, as well as a successful Springer author.

Steps in Commutative Algebra Cambridge University Press

This book can be understood as a model for teaching commutative algebra, and takes into account modern developments such as algorithmic and computational aspects. As soon as a new concept is introduced, the authors show how the concept can be worked on using a computer. The computations are exemplified with the computer algebra system Singular, developed by the authors. Singular is a special system for polynomial computation with many features for global as well as for local commutative algebra and algebraic geometry. The book includes a CD containing Singular as well as the examples and procedures explained in the book.

Commutative Algebra Cambridge University Press

This textbook offers a thorough, modern introduction into commutative algebra. It is intended mainly to serve as a guide for a course of one or two semesters, or for self-study. The carefully selected

subject matter concentrates on the concepts and results at the center of the field. The book maintains a constant view on the natural geometric context, enabling the reader to gain a deeper understanding of the material. Although it emphasizes theory, three chapters are devoted to computational aspects. Many illustrative examples and exercises enrich the text.

Noncommutative View Springer

First Published in 2018. Routledge is an imprint of Taylor & Francis, an Informa company.

Commutative Algebra: Constructive Methods Walter de Gruyter GmbH & Co KG

- Contains many examples and problems (with hints) - Provides a good introduction for beginners in algebraic number theory and algebraic geometry

Commutative Ring Theory Springer Science & Business Media

This is a comprehensive review of commutative algebra, from localization and primary decomposition through dimension theory, homological methods, free resolutions and duality, emphasizing the origins of the ideas and their connections with other parts of mathematics. The book gives a concise treatment of Grobner basis theory and the constructive methods in commutative algebra and algebraic geometry that flow from it. Many exercises included.

Methods of Homological Algebra Springer Science & Business Media

This volume offers a compendium of exercises of varying degree of difficulty in the theory of modules and rings. It is the companion volume to GTM 189. All exercises are solved in full detail. Each section begins with an introduction giving the general background and the theoretical basis for the problems that follow.

Algebraic Geometry CRC Press

This ACM volume deals with tackling problems that can be represented by data structures which are essentially matrices with polynomial entries, mediated by the disciplines of commutative algebra and algebraic geometry. The discoveries stem from an interdisciplinary branch of research which has been growing steadily over the past decade. The author covers a wide range, from showing how to obtain deep heuristics in a computation of a ring, a module or a morphism, to developing means of solving nonlinear systems of equations - highlighting the use of advanced techniques to bring down the cost of computation. Although intended for advanced students and researchers with interests both in algebra and computation, many parts may be read by anyone with a basic abstract algebra course.

Computational Methods in Commutative Algebra and Algebraic Geometry Springer Science & Business Media

Grothendieck's beautiful theory of schemes permeates modern algebraic geometry and underlies its applications to number theory, physics, and applied mathematics. This simple account of that theory emphasizes and explains the universal geometric concepts behind the definitions. In the book, concepts are illustrated with fundamental examples, and explicit calculations show how the constructions of scheme theory are carried out in practice.

Undergraduate Commutative Algebra Springer

A precise, fundamental study of commutative algebra, this largely self-contained treatment is the first in a two-volume set. Intended for advanced undergraduates and graduate students in mathematics, its prerequisites are the rudiments of set theory and linear algebra, including matrices

and determinants. The opening chapter develops introductory notions concerning groups, rings, fields, polynomial rings, and vector spaces. Subsequent chapters feature an exposition of field theory and classical material concerning ideals and modules in arbitrary commutative rings,

including detailed studies of direct sum decompositions. The final two chapters explore Noetherian rings and Dedekind domains. This work prepares readers for the more advanced topics of Volume II, which include valuation theory, polynomial and power series rings, and local algebra.