

<<理想数、簇与算法第2版>>

图书基本信息

书名：<<理想数、簇与算法第2版>>

13位ISBN编号：9787506265980

10位ISBN编号：7506265982

出版时间：2004-4

出版时间：北京世界图书出版公司

作者：Cox

页数：536

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

<<理想数、簇与算法第2版>>

内容概要

We wrote this book to introduce undergraduates to some interesting ideas in algebraic geometry and commutative algebra.

Until recently , these topics involved a lot of abstract mathematics and were only taught in graduate school.

But in the 1960s , Buchberger and Hironaka discovered new algorithms for manipulating systems of polynomial equations.

Fueled by the development of computers fast enough to run these algorithms , the last two decades have seen a minor revolution in commutative algebra.

The ability to compute efficiently with polynomial equations has made it possible to investigate complicated examples that would be impossible to do by hand , and has changed the practice of much research in algebraic geometry.

This has also enhanced the importance of the subject for computer scientists and engineers , who have begun to use these techniques in a whole range of problems.

<<理想数、簇与算法第2版>>

书籍目录

PrefacetothefirstEdition PrefacetothesecondEdition 1. Geometry, Algebra, and Algorithms 1.

Polynomials and Affine Space 2. Affine Varieties 3. Parametrizations of Affine Varieties 4. Ideals 5.

Polynomials of One Variable 2. Groebner Bases 1. Introduction 2. Orderings on the Monomials in $k[x_1, \dots, x_n]$ 3. A Division Algorithm in $k[x_1, \dots, x_n]$ 4. Monomial Ideals and Dickson's Lemma 5.

The Hilbert Basis Theorem and Groebner Bases 6. Properties of Groebner Bases 7. Buchberger's Algorithm 8. First Applications of Groebner Bases 9. (Optional) Improvements on Buchberger's Algorithm 3.

Elimination Theory 1. The Elimination and Extension Theorems 2. The Geometry of Elimination 3.

Implicitization 4. Singular Points and Envelopes 5. Unique Factorization and Resultants 6.

Resultants and the Extension Theorem 4. The Algebra-Geometry Dictionary 1. Hilbert's Nullstellensatz 2.

Radical Ideals and the Ideal-Variety Correspondence 3. Sums, Products, and Intersections of Ideals 4.

Zariski Closure and Quotients of Ideals 5. Irreducible Varieties and Prime Ideals 6.

Decomposition of a Variety into Irreducibles 7. (Optional) Primary Decomposition of Ideals 8. Summary 5.

Polynomial and Rational Functions on a Variety 1. Polynomial Mappings 2. Quotients of Polynomial Rings 3. Algorithmic Computations in $k[x_1, \dots, x_n]$ 4. The Coordinate Ring of an Affine Variety 5.

Rational Functions on a Variety 6. (Optional) Proof of the Closure Theorem 6.

Robotics and Automatic Geometric Theorem Proving 1. Geometric Description of Robots 2.

The Forward Kinematic Problem 3. The Inverse Kinematic Problem and Motion Planning 4.

Automatic Geometric Theorem Proving 5. Wu's Method 7. Invariant Theory of Finite Groups 1.

Symmetric Polynomials 2. Finite Matrix Groups and Rings of Invariants 3. Generators for the Ring of Invariants 4. Relations Among Generators and the Geometry of Orbits 8. Projective Algebraic Geometry 1.

The Projective Plane 2. Projective Space and Projective Varieties 3.

The Projective Algebra-Geometry Dictionary 4. The Projective Closure of an Affine Variety 5.

Projective Elimination Theory 6. The Geometry of Quadric Hypersurfaces 7. Bezout's Theorem 9. The Dimension of a Variety 1. The Variety of a Monomial Ideal 2. The Complement of a Monomial Ideal 3. The Hilbert Function and the Dimension of a Variety 4. Elementary Properties of Codimension 5.

Dimension and Algebraic Independence 6. Dimension and Nonsingularity 7. The Tangent Cone

Appendix A. Some Concepts from Algebra 1. Fields and Rings 2. Groups 3. Determinants

Appendix B. Pseudocode 1. Inputs, Outputs, Variables, and Constants 2. Assignment Statements 3.

Looping Structures 4. Branching Structures Appendix C. Computer Algebra Systems 1. AXIOM 2. Maple 3.

Mathematica 4. REDUCE 5. Other Systems Appendix D. Independent Projects 1. General Comments 2. Suggested Projects References Index

<<理想数、簇与算法第2版>>

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:<http://www.tushu007.com>