

1. Record Nr.	UNINA9910139609303321
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Titolo	Principles of algebraic geometry // Phillip Griffiths and Joseph Harris
Pubbl/distr/stampa	Hoboken, N.J., : Wiley, 1994
ISBN	1-283-24648-1 9786613246486 1-118-03252-7 1-118-03077-X
Descrizione fisica	1 online resource (830 p.)
Collana	Wiley classics library
Altri autori (Persone)	HarrisJoseph
Disciplina	516.35
Soggetti	Geometry, Algebraic
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Originally published in 1978.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Principles of Algebraic Geometry; CONTENTS; CHAPTER 0 FOUNDATIONAL MATERIAL; 1. Rudiments of Several Complex Variables; Cauchy's Formula and Applications; Several Variables; Weierstrass Theorems and Corollaries; Analytic Varieties; 2. Complex Manifolds; Complex Manifolds; Submanifolds and Subvarieties; De Rham and Dolbeault Cohomology; Calculus on Complex Manifolds; 3. Sheaves and Cohomology; Origins: The Mittag-Leffler Problem; Sheaves; Cohomology of Sheaves; The de Rham Theorem; The Dolbeault Theorem; 4. Topology of Manifolds; Intersection of Cycles; Poincare Duality Intersection of Analytic Cycles 5. Vector Bundles, Connections, and Curvature; Complex and Holomorphic Vector Bundles; Metrics, Connections, and Curvature; 6. Harmonic Theory on Compact Complex Manifolds; The Hodge Theorem; Proof of the Hodge Theorem I: Local Theory; Proof of the Hodge Theorem II: Global Theory; Applications of the Hodge Theorem; 7. Kahler Manifolds; The Kahler Condition; The Hodge Identities and the Hodge Decomposition; The Lefschetz Decomposition; CHAPTER 1 COMPLEX ALGEBRAIC VARIETIES; 1. Divisors and Line Bundles; Divisors; Line Bundles; Chern Classes of Line Bundles 2. Some Vanishing Theorems and Corollaries The Kodaira Vanishing Theorem; The Lefschetz Theorem on Hyperplane Sections; Theorem B;

The Lefschetz Theorem on $(1, 1)$ -classes; 3. Algebraic Varieties; Analytic and Algebraic Varieties; Degree of a Variety; Tangent Spaces to Algebraic Varieties; 4. The Kodaira Embedding Theorem; Line Bundles and Maps to Projective Space; Blowing Up; Proof of the Kodaira Theorem; 5. Grassmannians; Definitions; The Cell Decomposition; The Schubert Calculus; Universal Bundles; The Plucker Embedding; CHAPTER 2 RIEMANN SURFACES AND ALGEBRAIC CURVES; 1.

Preliminaries

Embedding Riemann Surfaces The Riemann-Hurwitz Formula; The Genus Formula; Cases $g = 0, 1$; 2. Abel's Theorem; Abel's Theorem-First Version; The First Reciprocity Law and Corollaries; Abel's Theorem-Second Version; Jacobi Inversion; 3. Linear Systems on Curves; Reciprocity Law II; The Riemann-Roch Formula; Canonical Curves; Special Linear Systems I; Hyperelliptic Curves and Riemann's Count; Special Linear Systems II; 4. Plucker Formulas; Associated Curves; Ramification; The General Plucker Formulas I; The General Plucker Formulas II; Weierstrass Points; Plucker Formulas for Plane Curves

5. Correspondences Definitions and Formulas; Geometry of Space Curves; Special Linear Systems III; 6. Complex Tori and Abelian Varieties; The Riemann Conditions; Line Bundles on Complex Tori; Theta-Functions; The Group Structure on an Abelian Variety; Intrinsic Formulations; 7. Curves and Their Jacobians; Preliminaries; Riemann's Theorem; Riemann's Singularity Theorem; Special Linear Systems IV; Torelli's Theorem; CHAPTER 3 FURTHER TECHNIQUES; 1. Distributions and Currents; Definitions; Residue Formulas; Smoothing and Regularity; Cohomology of Currents
2. Applications of Currents to Complex Analysis

Sommario/riassunto

A comprehensive, self-contained treatment presenting general results of the theory. Establishes a geometric intuition and a working facility with specific geometric practices. Emphasizes applications through the study of interesting examples and the development of computational tools. Coverage ranges from analytic to geometric. Treats basic techniques and results of complex manifold theory, focusing on results applicable to projective varieties, and includes discussion of the theory of Riemann surfaces and algebraic curves, algebraic surfaces and the quadric line complex as well as special top