

<<多复变量>>

图书基本信息

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前言

The present book grew out of introductory lectures on the theory of functions of several variables. Its intent is to make the reader familiar, by the discussion of examples and special cases, with the most important branches and methods of this theory, among them, e.g., the problems of holomorphic continuation, the algebraic treatment of power series, sheaf and cohomology theory, and the real methods which stem from elliptic partial differential equations. In the first chapter we begin with the definition of holomorphic functions of several variables, their representation by the Cauchy integral, and their power series expansion on Reinhardt domains. It turns out that, in contrast to the theory of a single variable, for $n > 2$ there exist domains $G \subset \mathbb{C}^n$ with $\bar{G} = G$ such that each function holomorphic in G has a continuation on \bar{G} . Domains G for which such a \bar{G} does not exist are called domains of holomorphy. In Chapter 2 we give several characterizations of these domains of holomorphy (theorem of Cartan-Thullen, Levis problem). We finally construct the holomorphic hull $H(G)$ for each domain G , that is the largest (not necessarily schlicht) domain over \mathbb{C}^n into which each function holomorphic on G can be continued. The third chapter presents the Weierstrass formula and the Weierstrass preparation theorem with applications to the ring of convergent power series. It is shown that this ring is a factorization, a Noetherian, and a Hensel ring. Furthermore we indicate how the obtained algebraic theorems can be applied to the local investigation of analytic sets. One achieves deep results in this connection by using sheaf theory, the basic concepts of which are discussed in the fourth chapter. In Chapter V we introduce complex manifolds and give several examples. We also examine the different closures of \mathbb{C} and the effects of modifications on complex manifolds.

内容概要

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<<多复变量>>

书籍目录

Chapter Holomorphic Functions 1 Power Series 2 Complex Differentiable Functions 3 The Cauchy Integral 4 Identity Theorems 5 Expansion in Reinhardt Domains 6 Real and Complex Differentiability 7 Holomorphic Mappings

Chapter Domains of Holomorphy 1 The Continuity Theorem 2 Pseudoconvexity 3 Holomorphic Convexity 4 The Thullen Theorem 5 Holomorphically Convex Domains: 6 Examples 7 Riemann Domains over C^n 8 Holomorphic Hulls

Chapter The Weierstrass Preparation Theorem 1 The Algebra of Power Series 2 The Weierstrass Formula 3 Convergent Power Series 4 Prime Factorization 5 Further Consequences (Hensel Rings, Noetherian Rings) 6 Analytic Sets

Chapter Sheaf Theory 1 Sheaves of Sets 2 Sheaves with Algebraic Structure 3 Analytic Sheaf Morphisms 4 Coherent Sheaves

Chapter Complex Manifolds 1 Complex Ringed Spaces 2 Function Theory on Complex Manifolds 3 Examples of Complex Manifolds 4 Closures of C^n

Chapter Cohomology Theory 1 Flabby Cohomology 2 The Čech Cohomology 3 Double Complexes 4 The Cohomology Sequence 5 Main Theorem on Stein Manifolds

Chapter Real Methods 1 Tangential Vectors 2 Differential Forms on Complex Manifolds 3 Cauchy Integrals 4 Dolbeault's Lemma 5 Fine Sheaves (Theorems of Dolbeault and de Rham)

List of symbols
Bibliography
Index

编辑推荐

sheaf and cohomology theory , and the real methods which stem from elliptic partial differential equations.

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