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Sommario/riassunto The complex analysis, also known as theory of analytic functions or

complex variable function theory, is the part of mathematical analysis that investigates the functions of complex numbers, their analyticity, holomorphicity, and integration of these functions on complex domains that can be complex manifolds or submanifolds. Also the extensions of these domains to the complex projective spaces and complex topological groups are study themes. The analytic continuing of complex domains where complex series representations are used and the exploring of singularities whose integration invariants obtain values as zeros of certain polynomials of the complex rings of certain vector bundles are important in the exploring of new function classes in the meromorphic context and also arithmetic context. Also important are established correspondences with complex vector spaces, or even in their real parts, using several techniques of complex geometrical analysis, Nevanlinna methods, and other techniques as the modular forms. All this is just some examples of great abundance of the problems in mathematics research that require the complex analysis application. This book covers some interesting and original research of certain topics of complex analysis. Also included are some applications for inverse and ill posed problems developed in engineering and applied research.