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Titolo	Computing the Zeros of Analytic Functions [[electronic resource] /] / by Peter Kravanja, Marc Van Barel
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Classificazione	65H05 30C15 65E05
Disciplina	515
Soggetti	Functions of complex variables Numerical analysis Functions of a Complex Variable Numerical Analysis
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Nota di contenuto	Zeros of analytic functions: Introduction -- Formal orthogonal polynomials -- An accurate algorithm to compute zeros of FOPs -- Numerical examples -- The software package ZEAL -- A derivative-free approach -- Clusters of zeros of analytic functions: How to obtain the centre of a cluster and its weight -- A numerical example -- Rational interpolation at roots of unity -- More numerical examples -- Zeros and poles of meromorphic functions: Introduction -- Theoretical considerations and numerical algorithm -- A numerical example -- Systems of analytic equations: Introduction -- A multidimensional logarithmic residue formula -- The algorithm -- Numerical examples.
Sommario/riassunto	Computing all the zeros of an analytic function and their respective multiplicities, locating clusters of zeros and analytic functions, computing zeros and poles of meromorphic functions, and solving systems of analytic equations are problems in computational complex analysis that lead to a rich blend of mathematics and numerical analysis. This book treats these four problems in a unified way. It contains not only theoretical results (based on formal orthogonal

polynomials or rational interpolation) but also numerical analysis and algorithmic aspects, implementation heuristics, and polished software (the package ZEAL) that is available via the CPC Program Library. Graduate students and researchers in numerical mathematics will find this book very readable.

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