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Nota di contenuto	Front matter -- Preface -- Contents -- Chapter 1. Introduction -- Chapter 2. Existence and properties of eigenvalues and eigenvectors -- Chapter 3. Jacobi iteration -- Chapter 4. Power methods -- Chapter 5. QR iteration -- Chapter 6. Bisection methods -- Chapter 7. Krylov subspace methods for large sparse eigenvalue problems -- Chapter 8. Generalized and polynomial eigenvalue problems -- Bibliography -- Index
Sommario/riassunto	Eigenvalues and eigenvectors of matrices and linear operators play an important role when solving problems from structural mechanics and electrodynamics, e.g., by describing the resonance frequencies of systems, when investigating the long-term behavior of stochastic processes, e.g., by describing invariant probability measures, and as a tool for solving more general mathematical problems, e.g., by diagonalizing ordinary differential equations or systems from control theory. This textbook presents a number of the most important numerical methods for finding eigenvalues and eigenvectors of matrices. The authors discuss the central ideas underlying the different algorithms and introduce the theoretical concepts required to analyze their behavior with the goal to present an easily accessible introduction to the field, including rigorous proofs of all important results, but not a

complete overview of the vast body of research. Several programming examples allow the reader to experience the behavior of the different algorithms first-hand. The book addresses students and lecturers of mathematics, physics and engineering who are interested in the fundamental ideas of modern numerical methods and want to learn how to apply and extend these ideas to solve new problems.