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Nota di contenuto	Preface and Overview -- 1 Integral representations of linear functionals -- 2 Moment problems on abelian *-semigroups -- Part I The one dimensional moment problem -- 3 One dimensional moment problems on intervals: existence -- 4 One dimensional moment problems: determinacy -- 5 Orthogonal polynomials and Jacobi operators -- 6 The operator-theoretic approach to the Hamburger moment problem -- 7 The indeterminate Hamburger moment problem -- 8 The operator-theoretic approach to the Stieltjes moment problem -- Part II The one dimensional truncated moment problem -- 9 The one-dimensional truncated Hamburger and Stieltjes moment problems -- 10 The one-dimensional truncated moment problem on a bounded interval -- 11 The moment problem on the unit circle -- Part III The multidimensional moment problem -- 12 The moment problem on compact semi-algebraic sets -- 13 The moment problem on closed semi-algebraic sets: existence -- 14 The multidimensional moment

problem: determinacy -- 15 The complex moment problem -- 16
Semidefinite programming and polynomial optimization -- Part IV The
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The truncated moment problem for homogeneous polynomials.

Sommario/riassunto

This advanced textbook provides a comprehensive and unified account of the moment problem. It covers the classical one-dimensional theory and its multidimensional generalization, including modern methods and recent developments. In both the one-dimensional and multidimensional cases, the full and truncated moment problems are carefully treated separately. Fundamental concepts, results and methods are developed in detail and accompanied by numerous examples and exercises. Particular attention is given to powerful modern techniques such as real algebraic geometry and Hilbert space operators. A wide range of important aspects are covered, including the Nevanlinna parametrization for indeterminate moment problems, canonical and principal measures for truncated moment problems, the interplay between Positivstellensätze and moment problems on semi-algebraic sets, the fibre theorem, multidimensional determinacy theory, operator-theoretic approaches, and the existence theory and important special topics of multidimensional truncated moment problems. The Moment Problem will be particularly useful to graduate students and researchers working on moment problems, functional analysis, complex analysis, harmonic analysis, real algebraic geometry, polynomial optimization, or systems theory. With notes providing useful background information and exercises of varying difficulty illustrating the theory, this book will also serve as a reference on the subject and can be used for self-study.
