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Titolo	Factorization of Matrix and Operator Functions: The State Space Method / / by Harm Bart, Israel Gohberg, Marinus A. Kaashoek, André C.M. Ran
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Descrizione fisica	1 online resource (420 p.)
Collana	Linear Operators and Linear Systems, , 2504-3609 ; ; 178
Disciplina	512.9434
Soggetti	Operator theory
	Matrix theory
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	Operator Theory
	Linear and Multilinear Algebras, Matrix Theory
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Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
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Note generali	Description based upon print version of record.
Nota di contenuto	Motivating Problems, Systems and Realizations -- Motivating Problems -- Operator Nodes, Systems, and Operations on Systems -- Various Classes of Systems -- Realization and Linearization of Operator Functions -- Factorization and Riccati Equations -- Canonical Factorization and Applications -- Minimal Realization and Minimal Factorization -- Minimal Systems -- Minimal Realizations and Pole-Zero Structure -- Minimal Factorization of Rational Matrix Functions -- Degree One Factors, Companion Based Rational Matrix Functions, and Job Scheduling -- Factorization into Degree One Factors -- Complete Factorization of Companion Based Matrix Functions -- Quasicomplete Factorization and Job Scheduling -- Stability of Factorization and of Invariant Subspaces -- Stability of Spectral Divisors -- Stability of

Divisors -- Factorization of Real Matrix Functions.

Sommario/riassunto   The present book deals with factorization problems for matrix and operator functions. The problems originate from, or are motivated by, the theory of non-selfadjoint operators, the theory of matrix polynomials, mathematical systems and control theory, the theory of Riccati equations, inversion of convolution operators, theory of job scheduling in operations research. The book systematically employs a geometric principle of factorization which has its origins in the state space theory of linear input-output systems and in the theory of characteristic operator functions. This principle allows one to deal with different factorizations from one point of view. Covered are canonical factorization, minimal and non-minimal factorizations, pseudo-canonical factorization, and various types of degree one factorization. Considerable attention is given to the matter of stability of factorization which in terms of the state space method involves stability of invariant subspaces.invariant subspaces.