1. Record Nr. UNINA9910254085403321

Autore	Burgdorf Sabine
Titolo	Optimization of Polynomials in Non-Commuting Variables / / by Sabine Burgdorf, Igor Klep, Janez Povh
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-33338-0
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (XV, 104 p. 2 illus. in color.)
Collana	SpringerBriefs in Mathematics, , 2191-8198
Disciplina	519.3
Soggetti	Geometry, Algebraic Quantum computers Operations research Management science Computer software System theory Algebraic Geometry Quantum Computing Operations Research, Management Science Mathematical Software Systems Theory, Control
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Sommario/riassunto	This book presents recent results on positivity and optimization of polynomials in non-commuting variables. Researchers in non-commutative algebraic geometry, control theory, system engineering, optimization, quantum physics and information science will find the unified notation and mixture of algebraic geometry and mathematical programming useful. Theoretical results are matched with algorithmic considerations; several examples and information on how to use NCSOStools open source package to obtain the results provided. Results are presented on detecting the eigenvalue and trace positivity

of polynomials in non-commuting variables using Newton chip method and Newton cyclic chip method, relaxations for constrained and unconstrained optimization problems, semidefinite programming formulations of the relaxations and finite convergence of the hierarchies of these relaxations, and the practical efficiency of algorithms.