1. Record Nr. UNINA9910799488503321

Titolo	Polynomial Optimization, Moments, and Applications / / edited by Michal Kovara, Bernard Mourrain, Cordian Riener
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2023
ISBN	3-031-38659-0
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (XIV, 266 p. 40 illus., 29 illus. in color.)
Collana	Springer Optimization and Its Applications, , 1931-6836 ; ; 206
Disciplina	519.3
Soggetti	Mathematical optimization Algebra Optimization
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
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Sommario/riassunto

Polynomial optimization is a fascinating field of study that has revolutionized the way we approach nonlinear problems described by polynomial constraints. The applications of this field range from production planning processes to transportation, energy consumption, and resource control. This introductory book explores the latest research developments in polynomial optimization, presenting the results of cutting-edge interdisciplinary work conducted by the European network POEMA. For the past four years, experts from various fields, including algebraists, geometers, computer scientists, and industrial actors, have collaborated in this network to create new methods that go beyond traditional paradigms of mathematical optimization. By exploiting new advances in algebra and convex geometry, these innovative approaches have resulted in significant scientific and technological advancements. This book aims to make these exciting developments accessible to a wider audienceby gathering high-quality chapters on these hot topics. Aimed at both aspiring and established researchers, as well as industry professionals, this book will be an invaluable resource for anyone interested in polynomial optimization and its potential for real-world applications.