1.	Record Nr.	UNINA9910964517403321
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	Titolo	Positive definite matrices / / Rajendra Bhatia
	Pubbl/distr/stampa	Princeton, N.J., : Princeton University Press, c2007
	ISBN	9786612129742
		9781282129740
		1282129740
		9781400827787
		1400827787
	Edizione	[Course Book]
	Descrizione fisica	1 online resource (265 p.)
	Collana	Princeton series in applied mathematics
	Classificazione	SK 220
	Disciplina	512.9/434
	Soggetti	Matrices
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Description based upon print version of record.
	Nota di bibliografia	Includes bibliographical references (p. [237]-245) and index.
	Nota di contenuto	Frontmatter -- Contents -- Preface -- Chapter One. Positive Matrices -- Chapter Two. Positive Linear Maps -- Chapter Three. Completely Positive Maps -- Chapter Four. Matrix Means -- Chapter Five. Positive Definite Functions -- Chapter Six. Geometry of Positive Matrices -- Bibliography -- Index -- Notation
	Sommario/riassunto	This book represents the first synthesis of the considerable body of new research into positive definite matrices. These matrices play the same role in noncommutative analysis as positive real numbers do in classical analysis. They have theoretical and computational uses across a broad spectrum of disciplines, including calculus, electrical engineering, statistics, physics, numerical analysis, quantum information theory, and geometry. Through detailed explanations and an authoritative and inspiring writing style, Rajendra Bhatia carefully develops general techniques that have wide applications in the study of such matrices. Bhatia introduces several key topics in functional analysis, operator theory, harmonic analysis, and differential geometry--all built around the central theme of positive definite matrices. He discusses positive and completely positive linear maps, and presents major theorems with simple and direct proofs. He examines matrix means and their applications, and shows how to use

positive definite functions to derive operator inequalities that he and others proved in recent years. He guides the reader through the differential geometry of the manifold of positive definite matrices, and explains recent work on the geometric mean of several matrices. Positive Definite Matrices is an informative and useful reference book for mathematicians and other researchers and practitioners. The numerous exercises and notes at the end of each chapter also make it the ideal textbook for graduate-level courses.