

1. Record Nr.	UNINA9910865249503321
Autore	Ramos Zaqueu
Titolo	Determinantal Ideals of Square Linear Matrices // by Zaqueu Ramos, Aron Simis
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2024
ISBN	3-031-55284-9
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (326 pages)
Altri autori (Persone)	SimisAron
Disciplina	512.44
Soggetti	Commutative algebra Commutative rings Geometry, Algebraic Algebraic fields Polynomials Commutative Rings and Algebras Algebraic Geometry Field Theory and Polynomials Matrius (Matemàtica) Geometria algebraica Polinomis Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Part I: General oversight -- Background steps in determinantal rings -- Algebraic preliminaries -- Geometric oversight -- Part II: Linear section of notable structured square matrices -- Linear sections of the generic square matrix -- Symmetry preserving linear sections of the generic symmetric matrix -- Linear sections of the generic square Hankel matrix -- Hankel like catalecticants -- The dual variety of a linear determinantal hypersurface -- Part III: Other classes of linear sections -- Hilbert-Burch linear sections -- Apocryphal classes -- Appendix -- Index.
Sommario/riassunto	This book explores determinantal ideals of square matrices from the

perspective of commutative algebra, with a particular emphasis on linear matrices. Its content has been extensively tested in several lectures given on various occasions, typically to audiences composed of commutative algebraists, algebraic geometers, and singularity theorists. Traditionally, texts on this topic showcase determinantal rings as the main actors, emphasizing their properties as algebras. This book follows a different path, exploring the role of the ideal theory of minors in various situations—highlighting the use of Fitting ideals, for example. Topics include an introduction to the subject, explaining matrices and their ideals of minors, as well as classical and recent bounds for codimension. This is followed by examples of algebraic varieties defined by such ideals. The book also explores properties of matrices that impact their ideals of minors, such as the 1-generic property, explicitly presenting a criterion by Eisenbud. Additionally, the authors address the problem of the degeneration of generic matrices and their ideals of minors, along with applications to the dual varieties of some of the ideals. Primarily intended for graduate students and scholars in the areas of commutative algebra, algebraic geometry, and singularity theory, the book can also be used in advanced seminars and as a source of aid. It is suitable for beginner graduate students who have completed a first course in commutative algebra.
