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Soggetti	Combinatorial analysis Matrix theory Algebra Potential theory (Mathematics) Differential equations Probabilities Combinatorics Linear and Multilinear Algebras, Matrix Theory Potential Theory Ordinary Differential Equations Probability Theory and Stochastic Processes
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Nota di contenuto	Some combinatorially defined matrix class -- Sign pattern matrices -- The spectral radius of a graph -- The group inverse of the Laplacian matrix of a graph -- Boundary value problems on finite networks.
Sommario/riassunto	This book contains the notes of the lectures delivered at an Advanced Course on Combinatorial Matrix Theory held at Centre de Recerca Matemàtica (CRM) in Barcelona. These notes correspond to five series of lectures. The first series is dedicated to the study of several matrix classes defined combinatorially, and was delivered by Richard A. Brualdi. The second one, given by Pauline van den Driessche, is concerned with the study of spectral properties of matrices with a given

sign pattern. Dragan Stevanović delivered the third one, devoted to describing the spectral radius of a graph as a tool to provide bounds of parameters related with properties of a graph. The fourth lecture was delivered by Stephen Kirkland and is dedicated to the applications of the Group Inverse of the Laplacian matrix. The last one, given by Ángeles Carmona, focuses on boundary value problems on finite networks with special in-depth on the M-matrix inverse problem.
