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Titolo	Inverse M-Matrices and Ultrametric Matrices [[electronic resource] /] / by Claude Dellacherie, Servet Martinez, Jaime San Martin
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Descrizione fisica	1 online resource (X, 236 p. 14 illus.)
Collana	Lecture Notes in Mathematics, , 0075-8434 ; ; 2118
Disciplina	515.7
Soggetti	Potential theory (Mathematics) Probabilities Game theory Potential Theory Probability Theory and Stochastic Processes Game Theory, Economics, Social and Behav. Sciences
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Inverse M - matrices and potentials -- Ultrametric Matrices -- Graph of Ultrametric Type Matrices -- Filtered Matrices -- Hadamard Functions of Inverse M - matrices -- Notes and Comments Beyond Matrices -- Basic Matrix Block Formulae -- Symbolic Inversion of a Diagonally Dominant M - matrices -- Bibliography -- Index of Notations -- Index.
Sommario/riassunto	The study of M-matrices, their inverses and discrete potential theory is now a well-established part of linear algebra and the theory of Markov chains. The main focus of this monograph is the so-called inverse M-matrix problem, which asks for a characterization of nonnegative matrices whose inverses are M-matrices. We present an answer in terms of discrete potential theory based on the Choquet-Deny Theorem. A distinguished subclass of inverse M-matrices is ultrametric matrices, which are important in applications such as taxonomy. Ultrametricity is revealed to be a relevant concept in linear algebra and discrete potential theory because of its relation with trees in graph theory and mean expected value matrices in probability theory. Remarkable properties of Hadamard functions and products for

the class of inverse M-matrices are developed and probabilistic insights are provided throughout the monograph.

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