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| Nota di contenuto | Preface; Contents; 1 Introduction; 1.1 History of RMT and Current Development; 1.1.1 A brief review of RMT; 1.1.2 Spectral Analysis of Large Dimensional Random Matrices; 1.1.3 Limits of Extreme Eigenvalues; 1.1.4 Convergence Rate of ESD; 1.1.5 Circular Law; 1.1.6 CLT of Linear Spectral Statistics; 1.1.7 Limiting Distributions of Extreme Eigenvalues and Spacings; 1.2 Applications to Wireless Communications; 1.3 Applications to Finance Statistics; 2 Limiting Spectral Distributions; 2.1 Semicircular Law; 2.1.1 The iid Case; 2.1.2 Independent but not Identically Distributed<br>2.2 Marcenko-Pastur Law2.2.1 MP Law for iid Case; 2.2.2 Generalization to the Non-iid Case; 2.2.3 Proof of Theorem 2.11 by Stieltjes Transform; 2.3 LSD of Products; 2.3.1 Existence of the ESD of SnTn; 2.3.2 Truncation of the ESD of Tn; 2.3.3 Truncation, Centralization and Rescaling of the X-variables; 2.3.4 Sketch of the Proof of Theorem 2.12; 2.3.5 LSD of F Matrix; 2.3.6 Sketch of the Proof of Theorem 2.14; 2.3.7 When T is a Wigner Matrix; 2.4 Hadamard Product; 2.4.1 Truncation and Centralization; 2.4.2 Outlines of Proof of |

Sommario/riassunto

The book contains three parts: Spectral theory of large dimensional random matrices; Applications to wireless communications; and Applications to finance. In the first part, we introduce some basic theorems of spectral analysis of large dimensional random matrices that are obtained under finite moment conditions, such as the limiting spectral distributions of Wigner matrix and that of large dimensional sample covariance matrix, limits of extreme eigenvalues, and the central limit theorems for linear spectral statistics. In the second part, we introduce some basic examples of applications of ra