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Nota di contenuto	Introduction -- Part I The Law of Large Numbers -- Stationary measures -- The Law of Large Numbers -- Linear random walks -- Finite index subsemigroups -- Part II Reductive groups -- Loxodromic elements -- The Jordan projection of semigroups -- Reductive groups and their representations -- Zariski dense subsemigroups -- Random walks on reductive groups -- Part III The Central Limit Theorem -- Transfer operators over contracting actions -- Limit laws for cocycles -- Limit laws for products of random matrices -- Regularity of the stationary measure -- Part IV The Local Limit Theorem -- The Spectrum of the complex transfer operator -- The Local limit theorem for cocycles -- The local limit theorem for products of random matrices -- Part V Appendix -- Convergence of sequences of random variables -- The essential spectrum of bounded operators -- Bibliographical comments.

Sommario/riassunto

The classical theory of random walks describes the asymptotic behavior of sums of independent identically distributed random real variables. This book explains the generalization of this theory to products of independent identically distributed random matrices with real coefficients. Under the assumption that the action of the matrices is semisimple – or, equivalently, that the Zariski closure of the group generated by these matrices is reductive - and under suitable moment assumptions, it is shown that the norm of the products of such random matrices satisfies a number of classical probabilistic laws. This book includes necessary background on the theory of reductive algebraic groups, probability theory and operator theory, thereby providing a modern introduction to the topic.