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	Autore	Bovier Anton
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Nota di bibliografia

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Nota di contenuto

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Sommario/riassunto

Metastability is a wide-spread phenomenon in the dynamics of non-linear systems - physical, chemical, biological or economic - subject to the action of temporal random forces typically referred to as noise. This monograph provides a concise presentation of mathematical approach to metastability based on potential theory of reversible Markov processes. The authors shed new light on the metastability phenomenon as a sequence of visits of the path of the process to different metastable sets, and focus on the precise analysis of the respective hitting probabilities and hitting times of these sets. The theory is illustrated with many examples, ranging from finite-state Markov chains, finite-dimensional diffusions and stochastic partial differential equations, via mean-field dynamics with and without disorder, to stochastic spin-flip and particle-hopping dynamics and probabilistic cellular automata, unveiling the common universal features of these systems with respect to their metastable behaviour. The monograph will serve both as comprehensive introduction and as reference for graduate students and researchers interested in metastability.