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Autore	Hong Jialin
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Sommario/riassunto	This book provides an accessible overview concerning the stochastic numerical methods inheriting long-time dynamical behaviours of finite and infinite-dimensional stochastic Hamiltonian systems. The long-time dynamical behaviours under study involve symplectic structure, invariants, ergodicity and invariant measure. The emphasis is placed on the systematic construction and the probabilistic superiority of stochastic symplectic methods, which preserve the geometric structure of the stochastic flow of stochastic Hamiltonian systems. The problems considered in this book are related to several fascinating research hotspots: numerical analysis, stochastic analysis, ergodic theory, stochastic ordinary and partial differential equations, and rough path theory. This book will appeal to researchers who are interested in these topics.

