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Descrizione fisica	1 online resource (458 p.)
Collana	Advanced series in nonlinear dynamics ; ; v. 24
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Nota di contenuto	Preface; Contents; 1. Introduction and outline; 1.1 Hamiltonian dynamical systems approach to nonequilibrium statistical mechanics; 1.2 Thermostated dynamical systems approach to nonequilibrium statistical mechanics; 1.3 The red thread through this book; Part 1: Fractal transport coefficients; 2. Deterministic diffusion; 3. Deterministic drift-diffusion; 4. Deterministic reaction-diffusion; 5. Deterministic diffusion and random perturbations; 6. From normal to anomalous diffusion; 7. From diffusive maps to Hamiltonian particle billiards 8. Designing billiards with irregular transport coefficients9. Deterministic diffusion of granular particles; Part 2: Thermostated dynamical systems; 10. Motivation: coupling a system to a thermal reservoir; 11. The Gaussian thermostat; 12. The Nos e-Hoover thermostat; 13. Universalities in Gaussian and Nos e-Hoover dynamics?; 14. Gaussian and Nose-Hoover thermostats revisited; 15. Stochastic and deterministic boundary thermostats; 16. Active Brownian particles and Nos e-Hoover dynamics; Part 3: Outlook and conclusions; 17. Further topics in chaotic transport theory; 18. Conclusions

	BibliographyIndex
Sommario/riassunto	A valuable introduction for newcomers as well as an important reference and source of inspiration for established researchers, this book provides an up-to-date summary of central topics in the field of nonequilibrium statistical mechanics and dynamical systems theory. Understanding macroscopic properties of matter starting from microscopic chaos in the equations of motion of single atoms or molecules is a key problem in nonequilibrium statistical mechanics. Of particular interest both for theory and applications are transport processes such as diffusion, reaction, conduction and viscosity. Rec