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Disciplina	530.13
Soggetti	Statistical mechanics Thermodynamics Mathematical physics Stochastic processes System theory Statistical Mechanics Mathematical Physics Stochastic Processes Complex Systems
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Nota di contenuto	Equilibrium -- Stationary Nonequilibrium -- Discrete phase space -- Fluctuations -- Applications -- Historical comments -- Appendices -- References -- Index.
Sommario/riassunto	This 2nd edition of the book focuses on the properties of stationary states in chaotic systems of particles or fluids, setting aside the theory of how these states are achieved. The second edition has been thoroughly revised and includes numerous corrections. It incorporates recent findings, with particular emphasis on the equivalence between irreversible and reversible equations. The ongoing debate over reversibility and irreversible behavior is frequently discussed. The book seeks to unify the study of stationary nonequilibrium states with that of equilibrium states, using the paradigm offered by the simplest chaotic systems, specifically Anosov systems. The book begins by exploring the time-invariant distributions relevant to physics. A distinctive feature of this work is its historical approach. To clarify foundational

issues, the author analyzes the works of pioneering figures like Boltzmann, Clausius, and Maxwell, including translated excerpts of key historical documents. Additionally, the author establishes a close connection between the treatment of irreversible phenomena in statistical mechanics and the theory of chaotic systems, particularly at and beyond the onset of turbulence, as developed by Sinai, Ruelle, and Bowen (SRB) and others. Arguments are presented to strongly support the perspective that stationary states, whether in equilibrium or not, can be described in a unified framework. The book offers extensive coverage of contemporary research, presented in sufficient detail to give advanced students a sense of the ongoing research directions in this dynamic field. Proofs of theorems are generally limited to heuristic outlines, favoring the presentation of concepts and providing references for further study, thereby avoiding an overload of technical detail in the main text.
