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| Autore | Le Bellac Michel |
| Titolo | Equilibrium and non-equilibrium statistical thermodynamics / / Michel Le Bellac, Fabrice Mortessagne and G. George Batrouni |
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| Edizione | [1st ed.] |
| Descrizione fisica | 1 online resource (xvi, 616 pages) : digital, PDF file(s) |
| Altri autori (Persone) | MortessagneFabrice <1966-> BatrouniG. George <1956-> (Ghassan George) |
| Disciplina | 536/.7 |
| Soggetti | Thermodynamic equilibrium Irreversible processes Statistical thermodynamics |
| Lingua di pubblicazione | Inglese |
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| Nota di bibliografia | Includes bibliographical references (p. 605-610) and index. |
| Nota di contenuto | Cover; Half-title; Title; Copyright; Contents; Preface; 1 Thermostatistics; 2 Statistical entropy and Boltzmann distribution; 3 Canonical and grand canonical ensembles: applications; 4 Critical phenomena; 5 Quantum statistics; 6 Irreversible processes: macroscopic theory; 7 Numerical simulations; 8 Irreversible processes: kinetic theory; 9 Topics in non-equilibrium statistical mechanics; Appendix; References; Index |
| Sommario/riassunto | This graduate-level text gives a self-contained exposition of fundamental topics in equilibrium and nonequilibrium statistical thermodynamics. The text follows a balanced approach between the macroscopic (thermodynamic) and microscopic (statistical) points of view. The first half of the book deals with equilibrium thermodynamics and statistical mechanics. In addition to standard subjects, the reader will find a detailed account of broken symmetries, critical phenomena and the renormalization group, as well as an introduction to numerical |

methods. The second half of the book is devoted to nonequilibrium phenomena, first following a macroscopic approach, with hydrodynamics as an important example. Kinetic theory receives a thorough treatment through analysis of the Boltzmann-Lorentz model and the Boltzmann equation. The book concludes with general nonequilibrium methods such as linear response, projection method and the Langevin and Fokker-Planck equations, including numerical simulations. This advanced textbook will be of interest to graduate students and researchers in physics.
