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Autore	Binder Kurt
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Descrizione fisica	1 online resource (XVII, 258 p. 155 illus., 5 illus. in color.)
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Disciplina	530.13
Soggetti	Statistical physics Dynamics Mathematical physics Physics Computer simulation Condensed matter Chemistry, Physical and theoretical Complex Systems Mathematical Physics Numerical and Computational Physics, Simulation Simulation and Modeling Condensed Matter Physics Physical Chemistry
Lingua di pubblicazione	Inglese
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Nota di contenuto	Introduction: Purpose and Scope of this Volume, and Some General Comments -- Theoretical Foundations of the Monte Carlo Method and Its Applications in Statistical Physics -- Guide to Practical Work with the Monte Carlo Method -- Some Important Developments of the Monte Carlo Methodology -- Quantum Monte Carlo Simulation: An Introduction -- Monte Carlo Methods for the Sampling of Free Energy Landscapes -- Special Monte Carlo Algorithms -- Finite Size Scaling Tools for the Study of Interfacial Phenomena and Wetting.
Sommario/riassunto	The sixth edition of this highly successful textbook provides a detailed

introduction to Monte Carlo simulation in statistical physics, which deals with the computer simulation of many-body systems in condensed matter physics and related fields of physics and beyond (traffic flows, stock market fluctuations, etc.). Using random numbers generated by a computer, these powerful simulation methods calculate probability distributions, making it possible to estimate the thermodynamic properties of various systems. The book describes the theoretical background of these methods, enabling newcomers to perform such simulations and to analyse their results. It features a modular structure, with two chapters providing a basic pedagogic introduction plus exercises suitable for university courses; the remaining chapters cover major recent developments in the field. This edition has been updated with two new chapters dealing with recently developed powerful special algorithms and with finite size scaling tools for the study of interfacial phenomena, which are important for nanoscience. Previous editions have been highly praised and widely used by both students and advanced researchers.
