1. Record Nr. UNINA9910484142603321

Autore	Fornes Jose Antonio
Titolo	Principles of brownian and molecular motors / / Jose Antonio Fornes
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2021] Â©2021
ISBN	3-030-64957-1
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (XII, 194 p. 137 illus., 57 illus. in color.)
Collana	Springer Series in Biophysics ; ; Volume 21
Disciplina	621.381
Soggetti	Brownian motors Molecular machinery Biophysics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Brownian Ratchets and Molecular Motors -- The Fokker-Planck equation -- Biased Brownian Motion -- The Smoluchowski model -- Rotation of a dipole -- Ratchet dimer Brownian motor with Hydrodynamic interactions -- Fluctuations of the proton electromotive force across inner mitochondrial membrane -- Quantum Ratchets.
Sommario/riassunto	Molecular motors convert chemical energy (typically from ATP hydrolysis) to directed motion and mechanical work. Biomolecular motors are proteins able of converting chemical energy into mechanical motion and force. Because of their dimension, the many small parts that make up molecular motors must operate at energies only a few times greater than those of the thermal baths. The description of molecular motors must be stochastic in nature. Their actions are often described in terms of Brownian Ratchets mechanisms. In order to describe the principles used in their movement, we need to use the tools that theoretical physics give us. In this book we centralize on the some physical mechanisms of molecular motors.