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Titolo	Single Molecule Mechanics on a Surface : Gears, Motors and Nanocars / / edited by Francesca Moresco, Christian Joachim
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2023
ISBN	3-031-16930-1
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (197 pages)
Collana	Advances in Atom and Single Molecule Machines, , 2193-9705
Disciplina	547.7
Soggetti	Nanoelectromechanical systems Nanotechnology Self-assembly (Chemistry) Surfaces (Technology) Nanoscale Devices Nanoscale Design, Synthesis and Processing Molecular Self-assembly Surface patterning
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Unidirectional Motion of Single Molecules at Surfaces -- DMBI — from n-type Dopant to Molecular Machines -- Assembly, Diffusion and Rotation of Organic Molecules on a Gold Surface -- From Early Prototypes to On-surface Drivable Single Molecule Nano-Vehicles -- On-surface Translational Activity of Porphyrin Chromophore Molecules -- Controlled Driving of a Single-molecule Anthracene-based Nanocar on a Metal Surface -- Azulene Based Nanocars -- Towards a Molecular Mechanical Calculator -- Atomistic Modelling of Energy Dissipation in Nanoscale Gears -- Molecular Networks and Surface Engineering for Single Molecule Studies: From Spatial Separation to Emergent Properties.
Sommario/riassunto	Written by the leading experts of this field, this book results from the International Symposium on “Single Molecule Machines on a Surface: Gears, Train of Gears, Motors, and Cars” which took place in Toulouse, France on November 24th - 25th, 2021. The different chapters focus

on describing the use of single molecule mechanics on a surface and analyze the different steps leading to the design of a single molecule nanocar. The authors present how a single molecule is rotating, how a single molecule gear can participate to a train of molecule gears to propagate motion and how this knowledge is used for the design of nanocars. The way energy is provided to a single molecule and how this energy drives it onto the surface is also analyzed. A large portion of this volume is written by the eight teams selected to participate in the Nanocar Race II event. This book is of great use to graduate students, post-doctoral fellows and researchers who are interested in single molecule mechanics and who want to know more about the fundamentals and applications of this new research field. .

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