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Titolo	Frontiers and progress of current soft matter research // Xiang-Yang Liu, editor
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ISBN	981-15-9297-7
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (VII, 352 p. 95 illus., 79 illus. in color.)
Collana	Soft and Biological Matter, , 2213-1736
Disciplina	530.413
Soggetti	Soft condensed matter
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1. Introduction to Nonequilibrium Statistical Physics and its Foundations -- 2. On the Foundational Principles of Statistical Mechanics -- 3. Generalized Onsager Principle and It Applications -- 4. An Introduction to Emergence Dynamics in Complex Systems -- 5. Basics of Molecular Modeling and Molecular Simulation -- 6. Cocoon Silk: from Mesoscopic Materials Design to Engineering Principles and Applications -- 7. A Primer on Gels (with an Emphasis on Molecular Gels) -- 8. Fréedericksz-like Positional Transition Triggered by an External Electric Field.
Sommario/riassunto	This book covers some fundamental aspects and frontiers in non-equilibrium physics and soft matter research. Apart from the basic knowledge on nonlinear statistic physics, dynamics, computer simulations, and main approaches and emerging systems in soft matter research, particular attention is devoted to new conceptual flexible functional materials and the enriching areas, such as silk meso-molecular materials, molecular gels, liquid crystals, flexible electronics and new types of catalysis, etc. One of the main characteristics of this book is to start with the structure formation dynamics and the correlation between the structures and macroscopic performance. This lays down the foundation for the mesoscopic materials design and functionalization. The book is intended for upper undergraduate students, graduate students, and researchers who are interested in soft matter researches. As one of main references, the basic principles and

technologies of computer simulations and experimental methods adopted in soft matter research are also explained. Illustrations and tables are included in this book to improve the readability, and examples and exercises are added to help understanding. .
