

1. Record Nr.	UNINA9910437889103321
Titolo	Mechanical Self-Assembly : Science and Applications // edited by Xi Chen
Pubbl/distr/stampa	New York, NY : , : Springer New York : , : Imprint : Springer, , 2013
ISBN	1-283-93363-2 1-4614-4562-0
Edizione	[1st ed. 2013.]
Descrizione fisica	1 online resource (212 p.)
Disciplina	621
Soggetti	Mechanics Mechanics, Applied Nanotechnology Surfaces (Physics) Interfaces (Physical sciences) Thin films Biomedical engineering Theoretical and Applied Mechanics Surface and Interface Science, Thin Films Biomedical Engineering and Bioengineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Mechanical Self-Assembly in Nature -- Mechanical Self-Assembly vs. Morphogenesis -- Shaping by Active Deformation of Soft Elastic Sheets -- Ion Beam Induced Self-Assembled Wrinkles -- A Kinetics Approach to Surface Wrinkling of Elastic Thin Films -- Crease Instability on the Surface of a Solid -- Buckling Delamination of Compressed Thin Films -- Delaminated Film Buckling Microchannels -- Mechanical Self-Assembly on Curved Substrates. .
Sommario/riassunto	Mechanical Self-Assembly: Science and Applications introduces a novel category of self-assembly driven by mechanical forces. This book discusses self-assembly in various types of small material structures including thin films, surfaces, and micro- and nano-wires, as well as the practice's potential application in micro and nanoelectronics,

MEMS/NEMS, and biomedical engineering. The mechanical self-assembly process is inherently quick, simple, and cost-effective, as well as accessible to a large number of materials, such as curved surfaces for forming three-dimensional small structures. Mechanical self-assembly is complementary to, and sometimes offer advantages over, the traditional micro- and nano-fabrication. This book also:

- Presents a highly original aspect of the science of self-assembly
- Describes the novel methods of mechanical assembly used to fabricate a variety of new three-dimensional material structures in simple and cost-effective ways
- Provides simple insights to a number of biological systems and processes
- Elucidates underlying mechanics principles of spontaneous pattern formations

Mechanical Self-Assembly: Science and Applications is an ideal book for graduate students and engineers involved in the field of mechanical self-assembly.
