

1. Record Nr.	UNINA9910337929503321
Titolo	Wrinkled Polymer Surfaces : Strategies, Methods and Applications // edited by C. M. González-Henríquez, Juan Rodríguez-Hernández
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
ISBN	3-030-05123-4
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (XIV, 362 p. 215 illus., 180 illus. in color.)
Disciplina	620.44 620.1920429
Soggetti	Materials—Surfaces Thin films Polymers Biomaterials Optical materials Electronic materials Surfaces and Interfaces, Thin Films Polymer Sciences Optical and Electronic Materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter1: Introduction to surface instabilities and wrinkle formation -- Chapter2: Strategies for the fabrication of wrinkled surfaces -- Chapter3: Wrinkles obtained by frontal polymerization/vitrification -- Chapter4: Control of the wrinkled structure on surface-reformed elastomers via ion-beam bombardment -- Chapter5: Wrinkle formation by interfacial swelling on thermoplastic surfaces -- Chapter6: Laser-induced periodic surface structures (LIPSS) on polymer surfaces -- Chapter7: Design of perfectly ordered periodic structures on polymers using Direct Laser Interference Patterning -- Chapter8: Micro- and nano-patterned hydrogels fabricated by taking advantage of surface instabilities -- Chapter9: Wrinkling on covalently-anchored hydrogels -- Chapter10: Ripples and Wrinkles in graphene-Beyond continuum mechanics -- Chapter11: Wrinkling Labyrinth Patterns on Elastomeric

Janus Particles -- Chapter12: Wrinkled surfaces designed for bio-related applications -- Chapter13: Tuning Surface Morphology of Polymer Films through Bilayer Structures, Mechanical Forces and External Stimuli -- Chapter14: Other applications of wrinkled polymer surfaces -- Chapter15: Summary and futures outlooks.

---

## Sommario/riassunto

This book presents the state of the art in surface wrinkling, including current and future potential applications in biomedicine, tissue engineering, drug delivery, microfluidic devices, and other promising areas. Their use as templates, flexible electronics, and supports with controlled wettability and/or adhesion for biorelated applications demonstrate how the unique characteristics of wrinkled interfaces play a distinguishing and remarkable role. The fabrication approaches employed to induce wrinkle formation and the potential to fine-tune the amplitude and period of the wrinkles, their functionality, and their final morphology are thoroughly described. An overview of the main applications in which these buckled interfaces have already been employed or may have an impact in the near future is included. Presents a detailed description of the physical phenomena and strategies occurring at polymer surfaces to produce wrinkled surface patterns; Examines the different methodologies to produce morphology-controlled wrinkled surface patterns by means of physical and chemical treatment methods; Provides clear information on current and potential applications in flexible electronics and biomaterials, which are leading the use of these materials.

---