1. Record Nr. UNINA9910877728403321

Titolo	Organized organic ultrathin films : fundamentals and applications / / edited by Katsuhiko Ariga
Pubbl/distr/stampa	Weinheim, : Wiley, 2013
ISBN	3-527-65466-6 1-299-47598-1 3-527-65469-0 3-527-65468-2
Descrizione fisica	1 online resource (228 p.)
Altri autori (Persone)	ArigaKatsuhiko <1962->
Disciplina	621.38152
Soggetti	Organic thin films Nanostructured materials Self-assembly (Chemistry)
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	Title page; Copyright page; Contents; Preface; List of Contributors; 1: Introduction; 2: Self-Assembled Monolayer (SAM); 2.1 Introduction; 2.2 Preparation and Characterization; 2.2.1 Organothiols on Au; 2.2.2 Organosilanes on SiOx Surfaces; 2.2.3 SAMs on Si Surface via Si-C Bonding; 2.3 Functions and Applications; 2.3.1 Surface Coating and Patterning; 2.3.2 Sensor Applications; 2.3.3 Nanotribology; 2.3.4 Advanced Applications; 2.4 Future Perspective; 3: Langmuir-Blodgett (LB) Film; 3.1 Concept and Mechanism; 3.2 Preparation and Characterization; 3.2.1 Gibbs Monolayers 3.2.2 Langmuir Monolayers3.2.3 In situ Characterization of Monolayers at the Subphase Surface; 3.2.4 Transfer to Solid Supports; 3.3 Functions and Applications; 3.3.1 Molecular Recognition; 3.3.2 Multilayer Films for Photoelectronic Functions; 3.3.3 Biomimetic Functions; 3.3.4 Advanced Applications; 4: Layer-by-Layer (LbL) Assembly; 4.1 Concept and Mechanism; 4.2 Preparation and Characterization; 4.2.1 Applicable Materials and Interactions; 4.2.2 Thin-Film Preparation: Fundamental Procedure and Characterization; 4.2.3 Various Driving Forces and Techniques; 4.2.4 Three-Dimensional

Assemblies

4.3 Functions and Applications4.3.1 Physicochemical Applications of LbL Thin Films; 4.3.2 Biomedical Applications of LbL Thin Films; 4.4 Brief Summary and Perspectives; 5: Other Thin Films; 5.1 Bilayer Vesicle and Cast Film; 5.1.1 Definition of a Bilayer Structure, a Bilayer Membrane, and a Bilayer Vesicle; 5.1.2 Formation of a Bilayer Structure; 5.1.3 Cast Films Containing a Bilayer Structure; 5.2 Self-Assembled Fibers, Tubes, and Ribbons; 5.2.1 Introduction; 5.2.2 Finding a Helical Superstructure; 5.2.3 Organogel; 5.2.4 Control of Aggregate Morphology; 5.3 Polymer Brush Layer

5.3.1 Definition of Polymer Brushes5.3.2 Preparation of Polymer Brushes; 5.3.3 Properties and Applications of Concentrated Polymer Brushes; 5.4 Organic-Inorganic Hybrids; 5.5 Colloidal Layers; 5.6 Newly Appearing Techniques; 5.6.1 Material-Binding Peptide; 5.6.2 Block-Copolymer Films; 5.6.3 Nanoimprint Lithography; Index

Sommario/riassunto

This handy reference is the first comprehensive book covering both fundamentals and recent developments in the field with an emphasis on nanotechnology. Written by a highly regarded author in the field, the book details state-of-the-art preparation, characterization and applications of thin films of organic molecules and biomaterials fabricated by wet processes and also highlights applications in nanotechnology The categories of films covered include monomolecular films (monolayers) both on a water surface and on a solid plate, Langmuir-Blodgett films (transferred multilayer fil