1. Record Nr. UNINA9910830446403321

Autore	Rogers John A
Titolo	Unconventional nanopatterning techniques and applications [[electronic resource] /] / John A. Rogers, Hong H. Lee
Pubbl/distr/stampa	Hoboken, N.J., : Wiley, c2009
ISBN	1-281-93858-0 9786611938581 0-470-40578-3 0-470-40577-5
Descrizione fisica	1 online resource (616 p.)
Altri autori (Persone)	LeeHong H
Disciplina	620 620.5
Soggetti	Nanoparticles Nanostructured materials
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	UNCONVENTIONAL NANOPATTERNING TECHNIQUES AND APPLICATIONS; CONTENTS; PREFACE; I NANOPATTERNING TECHNIQUES; 1 INTRODUCTION; 2 MATERIALS; 2.1 Introduction; 2.2 Mold Materials and Mold Preparation; 2.2.1 Soft Molds; 2.2.2 Hard Molds; 2.2.3 Rigiflex Molds; 2.3 Surface Treatment and Modification; References; 3 PATTERNING BASED ON NATURAL FORCE; 3.1 Introduction; 3.2 Capillary Force; 3.2.1 Open-Ended Capillary; 3.2.2 Closed Permeable Capillary; 3.2.3 Completely Closed Capillary; 3.2.4 Fast Patterning; 3.2.5 Capillary Kinetics; 3.3 London Force and Liquid Filament Stability 3.3.1 Patterning by Selective Dewetting3.3.2 Liquid Filament Stability: Filling and Patterning; 3.4 Mechanical Stress: Patterning of A Metal Surface; References; 4 PATTERNING BASED ON WORK OF ADHESION; 4.1 Introduction; 4.2 Work of Adhesion; 4.3 Kinetic Effects; 4.4 Transfer Patterning; 4.5 Subtractive Transfer Patterning; 4.6 Transfer Printing; References; 5 PATTERNING BASED ON LIGHT: OPTICAL SOFT LITHOGRAPHY; 5.1 Introduction; 5.2 System Elements; 5.2.1 Overview; 5.2.2 Elastomeric Photomasks; 5.2.3 Photosensitive Materials; 5.3 Two-Dimensional Optical Soft Lithography (OSL)

5.3.1 Two-Dimensional OSL with Phase Masks5.3.2 Two-Dimensional OSL with Embossed Masks; 5.3.3 Two-Dimensional OSL with Amplitude Masks; 5.3.4 Two-Dimensional OSL with Amplitude/Phase Masks; 5.4 Three-Dimensional Optical Soft Lithography; 5.4.1 Optics; 5.4.2 Patterning Results; 5.5 Applications; 5.5.1 Low-Voltage Organic Electronics; 5.5.2 Filters and Mixers for Microfluidics; 5.5.3 High Energy Fusion Targets and Media for Chemical Release; 5.5.4 Photonic Bandgap Materials; References; 6 PATTERNING BASED ON EXTERNAL FORCE: NANOIMPRINT LITHOGRAPHY; 6.1 Introduction; 6.2 NIL MOLD 6.2.1 Mold Fabrication6.2.2 Mold Surface Preparation; 6.2.3 Flexible Fluoropolymer Mold; 6.3 NIL Resist; 6.3.1 Thermoplastic Resist; 6.3.2 Copolymer Thermoplastic Resists; 6.3.3 Thermal-Curable Resists; 6.3.4 UV-Curable Resist; 6.3.5 Other Imprintable Materials; 6.4 The Nanoimprint Process; 6.4.1 Cavity Fill Process; 6.5 Variations of NIL Processes; 6.5.1 Reverse Nanoimprint; 6.5.2 Combined Nanoimprint and Photolithography; 6.5.3 Roll-to-Roll Nanoimprint Lithography (R2RNIL); 6.6 Conclusion; References; 7 PATTERNING BASED ON EDGE EFFECTS: EDGE LITHOGRAPHY; 7.1 Introduction
7.2 Topography-Directed Pattern Transfer7.2.1 Photolithography with Phase-Shifting Masks; 7.2.2 Use of Edge-Defined Defects in SAMs; 7.2.3 Controlled Undercutting; 7.2.4 Edge-Spreading Lithography; 7.2.5 Edge Transfer Lithography; 7.2.6 Step-Edge Decoration; 7.3 Exposure of Nanoscale Edges; 7.3.1 Fracturing of Thin Films; 7.3.2 Sectioning of Encapsulated Thin Films; 7.3.3 Thin Metallic Films along Sidewalls of Patterned Stamps; 7.3.4 Topographic Reorientation; 7.4 Conclusion and Outlook; References; 8 PATTERNING WITH ELECTROLYTE: SOLID-STATE SUPERIONIC STAMPING; 8.1 Introduction 8.2 Solid-State Superionic Stamping

Sommario/riassunto

Patterning or lithography is at the core of modern science and technology and cuts across all disciplines. With the emergence of nanotechnology, conventional methods based on electron beam lithography and extreme ultraviolet photolithography have become prohibitively expensive. As a result, a number of simple and unconventional methods have been introduced, beginning first with research demonstrations in the mid 1990s. This book focuses on these unconventional patterning techniques and their applications to optics, organic devices, electronic devices, biological devices, and fluidics.

2. Record Nr. UNINA9911003036803321

Titolo	Discussion paper Wissenschaftszentrum Berlin fuer Sozialforschung Abteilung Ausbildung und Arbeitsmarkt Forschungsschwerpunkt Bildung Arbeit und Lebenschancen
Pubbl/distr/stampa	WZB
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Periodico