Record Nr. UNINA9911019578503321 Autore Rogers John A Titolo Unconventional nanopatterning techniques and applications / / John A. Rogers, Hong H. Lee Hoboken, N.J., : Wiley, c2009 Pubbl/distr/stampa **ISBN** 9786611938581 9781281938589 1281938580 9780470405789 0470405783 9780470405772 0470405775 Descrizione fisica 1 online resource (616 p.) Altri autori (Persone) LeeHong H Disciplina 620/.5 Soggetti **Nanoparticles** Nanostructured materials Lingua di pubblicazione Inglese Materiale a stampa **Formato** 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 Dewetting 3.3.2 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;

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## 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.