Record Nr. UNINA9910139022503321 Intelligent stimuli-responsive materials : from well-defined **Titolo** nanostructures to applications / / edited by Quan Li Pubbl/distr/stampa Hoboken, New Jersey:,: Wiley,, [2013] ©2013 1-118-68046-4 **ISBN** 1-118-68051-0 Descrizione fisica 1 online resource (499 p.) Altri autori (Persone) LiQuan <1965-> Disciplina 620.1/1 Soggetti Smart 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 INTELLIGENT STIMULI-RESPONSIVE MATERIALS; CONTENTS; PREFACE; CONTRIBUTORS; 1 NATURE-INSPIRED STIMULI-RESPONSIVE SELF-FOLDING MATERIALS; 1.1 INTRODUCTION; 1.2 DESIGN OF SELF-FOLDING FILMS: 1.3 MECHANISM OF FOLDING: 1.4 FABRICATION OF SELF-FOLDING FILMS; 1.5 STIMULI-RESPONSIVE PROPERTIES OF SELF-FOLDING FILMS; 1.5.1 pH Responsive; 1.5.2 Thermoresponsive; 1.5.3 Light Responsive; 1.5.4 Solvent Responsive; 1.5.5 Other Stimuli; 1.6 PROPERTIES AND APPLICATIONS OF SELF-FOLDING FILMS; 1.7 CONCLUSIONS AND OUTLOOK; REFERENCES 2 STIMULI-RESPONSIVE NANOSTRUCTURES FROM SELF-ASSEMBLY OF RIGID-FLEXIBLE BLOCK MOLECULES 2.1 INTRODUCTION: 2.2 THERMAL-RESPONSIVE NANOSTRUCTURES; 2.2.1 Pulsating Tubules from Non-Covalent Macrocycles; 2.2.2 Stimuli-Responsive Gels from T-Shaped Molecules; 2.2.3 Supramolecular Springs; 2.2.4 Structural Changes of Nanorings and Porous Nanostructures; 2.2.5 Aqueous Nanofibers with Switchable Chirality; 2.2.6 Switching between Helical Coils and Straight Rods: 2.2.7 Dynamic Nanostructures from Laterally Grafted Rod **Amphiphiles** 2.2.8 Responsive Nematic Gels from the Self-assembly of Aqueous Nanofibers 2.3 GUEST MOLECULE-RESPONSIVE NANOSTRUCTURE: 2.3.1

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There has been concerted effort across scientific disciplines to develop artificial materials and systems that can help researchers understand natural stimuli-responsive activities. With its up-to-date coverage on intelligent stimuli-responsive materials, Intelligent Stimuli-Responsive Materials provides research, industry, and academia professionals with the fundamentals and principles of intelligent stimuli-responsive materials, with a focus on methods and applications. Emphasizing nanostructures and applications for a broad range of fields, each chapter comprehensively covers a diffe