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3.3 Results and Discussions; 3.3.1 Effect of Confinement on the Dynamics of the BZ Gels; 3.3.1.1 Linear Stability Analysis in Limiting Cases; 3.3.1.2 Oscillations Induced by the Release of Confinement; 3.3.1.3 Behavior of Partially Confined Samples; 3.3.2 Response of the BZ Gels to Nonuniform Illumination; 3.3.2.1 Modeling the Photosensitivity of the BZ Gels; 3.3.2.2 Autonomous Motion toward the Dark Region; 3.3.2.3 Light-Guided Motion along Complex Paths
3.4 ConclusionsAcknowledgments; References; 4 Self-Repairing Polymeric Materials; 4.1 Introduction; 4.2 Damage and Repair Mechanisms in Polymers; 4.2.1 Dimensions of Damages and Repairs; 4.2.1.1 Angstrom-Level Repairs; 4.2.1.2 Nanometer-Level Repairs; 4.2.1.3 Micrometer-Level Repairs; 4.2.1.4 Millimeter-Level Repairs; 4.3 Summary; References; 5 Stimuli-Driven Assembly of Chromogenic Dye Molecules: a Versatile Approach for the Design of Responsive Polymers; 5.1 Introduction; 5.2 Excimer-Forming Sensor Molecules; 5.3 Fluorescent Mechanochromic Sensors; 5.4 Thermochromic Sensors
5.5 Chemical Sensing with Excimer-Forming Dyes5.6 Summary and Outlook; Acknowledgments; References; 6 Switchable Surface Approaches; 6.1 Introduction; 6.2 Electroactive Materials; 6.2.1 High-Density and Low-Density Self-Assembled Monolayers; 6.2.2 Self-Assembled Monolayers with Hydroquinone Incorporation; 6.3 Photoresponsive Materials; 6.3.1 Molecules Containing Azobenzene Units; 6.3.2 Molecules Containing Spiropyran Units; 6.3.3 Photoresponsive Shape-Memory Polymers; 6.4 pH-Responsive Materials; 6.4.1 pH-Switchable Surfaces Based on Self-Assembled Monolayers (SAMs)
6.4.2 pH-Switchable Surfaces Based on Polymer Brushes

Sommario/riassunto

Adopting a broad approach, this volume provides the scientific community with a much-needed overview of developments and scientific findings in stimuli-responsive materials. Its primary focus is on the designing, synthesizing, formulating, and processing of materials that lead to an understanding of the scientific principles governing response driven functions leading to future technologies.The highly experienced and internationally renowned editor has assembled a team of leading scientists from the interdisciplinary areas of:* polymers* biopolymers* biochemistry* bioph