Shape Memory Polymers And Multifunctional Composites

A novel multifunctional supramolecular hydrogel with self-healing, shape memory and adhesive properties is successfully developed on the basis of dynamic phenylboronic acid (PBA)-catechol interactions.

Magnetic Shape Memory Polymers with Integrated Multifunctional Shape Manipulations

Here, a novel magnetic shape memory polymer composite is reported to achieve this. The composite consists of two types of magnetic nanoparticles, magnetic shape memory polymer, and a multifunctional supramolecular hydrogel. The dual magnetic nanoparticles and the multifunctional hydrogel drive the magnetic and supramolecular shape manipulations, respectively, under actuation magnetic fields. These properties enable multifunctional shape manipulation for large and fast shape changes.

Shape-memory materials (SMMs) have the capability to respond to certain stimuli and to deform from a temporary shape to an original shape. Over the past decades, interest in shape memory polymers (SMPs) has persisted, and immense efforts have been dedicated to developing SMPs for many diverse fields to create things such as self-deployable spacecraft structures, morphing structures, SMP foams, smart textiles, and intelligent medical devices.

A Review of Shape Memory Polymers and Composites

Shape memory polymers (SMPs) are shape-memory materials that can recover their programmed shape from a significantly deformed shape when exposed to specific stimuli, such as heat, light, magnetism, electricity, and chemicals. They are lightweight, low cost, and can be easily processed into various shapes.

Multifunctional shape-memory polymers ... - ncbi.nlm.nih.gov

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Stimulus methods of multi-functional shape memory polymer systems

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Shape-Memory Polymers and Multifunctional Composites

Admired for their extraordinary stimuli-sensitive behavior and shape-changing capabilities, shape-memory polymers (SMPs) are the most extensively studied and being applied broadly and effectively. Magnetic Shape Memory Polymers with Integrated Multifunctional Shape Manipulations

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