Special Issue

Shape Memory Polymers for Drug Delivery and Tissue Engineering

Message from the Guest Editor

Shape memory polymers (SMPs) represent a highly versatile class of smart materials with unique capabilities to undergo programmed shape changes in response to external stimuli such as heat, pH, light, moisture, and ultrasound. This Special Issue focuses on highlighting emerging advances in the design, fabrication, and application of SMPs for drug delivery and tissue engineering.

In drug delivery, SMPs enable the development of responsive carriers that can be deployed in minimally invasive forms and activated in situ to release therapeutics with high spatiotemporal precision.

In tissue engineering, SMPs provide scaffolding materials with dynamic properties that effectively mimic the natural extracellular matrix. Their ability to change shape and stiffness allows for novel strategies in guided tissue regeneration, wound healing, and organ repair.

This Special Issue will collect cutting-edge contributions addressing fundamental design principles, fabrication technologies, biological interactions, and translational applications of SMPs and seeks to accelerate the development of next-generation SMP-based systems, which can transform drug delivery and tissue regeneration strategies.

Guest Editor

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