Special Issue

Preparation and Application of Intelligent Hydrogel Composites

Message from the Guest Editors

The equilibrium self-assembly of microstructures within hydrogels has been known for millennia and fundamentally understood over the past two centuries. The design of intelligent hydrogels, capable of movement, morphing, energy transformation, and even mimicking life functions, requires the non-equilibrium assembly of their adaptive microstructures. Despite significant advancements, developing intelligent hydrogels with versatile user-defined mechanical properties, mass transport behavior, and biologically inspired functions remains a formidable challenge.

This Special Issue on the "Preparation and Application of Intelligent Hydrogel Composites" will focus on the development of multicomponent intelligent hydrogels to address these challenges of single-component hydrogels. This Special Issue invites the submission of original research on topics including, but are not limited to, the following: Anisotropic intelligent hydrogels; Stimuli-responsive hydrogel nanocomposites; Shape-morphing multi-layer hydrogels; Gradient hydrogel nanocomposites; Microporous hydrogels; Fast-actuating hydrogels.

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