

Special Issue on Synthesis and Development of Functional Hydrogels

CALL FOR PAPERS

Hydrogels are soft-wet biomaterials with three-dimensional porous network structures and high water content. Due to their excellent biomimetic and biocompatible properties, hydrogels have attracted extensive attention in a wide range of research fields, including tissue engineering, drug delivery, wound healing, and artificial replacements. Thanks to several decades' effort, numbers of new hydrogel systems formed by various synthetic polymers and natural biopolymers have been proposed; meanwhile, novel applications have also been developed based on current hydrogel technology.

Combining the recent advances in the fields of hydrogel and functional materials is of special interest and great significance, to integrate new functions in the platform of hydrogels to meet challenging and complex requirements of real world biomedical applications. For example, regarding the mechanically brittle and weak limitations of hydrogels, novel network structures and/or new energy dissipation mechanisms can be introduced to toughen hydrogel for those loading bearing applications. Stimuli-responsive polymers can also be applied to form smart hydrogels to enable controlled drug release, actuator, bioseparation, biosensors, regenerative medicine, and so on. Other new functions include, but are not limited to, self-healing, self-recovery, antifouling, photoluminescence, and being adhesive and injectable/printable.

In this special issue, we would like to invite researchers to contribute both original research articles and reviews articles on biological aspects of hydrogels, including synthesis of new hydrogels and exploration of existing hydrogels for biomedical applications.

Potential topics include but are not limited to the following:

- ▶ New hydrogels systems formed by peptides, DNA, polysaccharides, synthetic polymers, and so on
- ▶ Tough hydrogels, like double network hydrogels, nanocomposites hydrogels, and so on
- ▶ Smart hydrogels with response to external stimuli, such as pH, temperature, light, ionic strength, and force
- ▶ Self-healable/self-recoverable hydrogels, capable of recovering or healing upon deformation or damage
- ▶ Antifouling hydrogels with efficient resistance to protein adsorption, cell/bacterial adhesion, and biofouling formation
- ▶ Antimicrobial hydrogels to kill and/or stop the growth of microorganisms
- ▶ Adhesive hydrogels to form strong adhesion between hydrogels and solid surfaces
- ▶ Hydrogel coatings, films, and membranes
- ▶ Novel hydrogel applications, like cell encapsulation, drug release, wound healing, biosensor, actuator, gene therapy, and so on
- ▶ Bioinks for 3D bioprinting

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/scientifica/biomaterials/sdfh/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor

Hong Chen, The University of Akron,
Akron, USA
hc54@zips.uakron.edu

Guest Editors

Jintao Yang, Zhejiang University of
Technology, Hangzhou, China
yangjt@zjut.edu.cn

Chao Zhao, Harvard Medical School,
Boston, USA
chao.zhao@childrens.harvard.edu

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