Special Issue

Advances in Hybrid and Functional Gels: Design, Characterization, and Emerging Applications

Message from the Guest Editor

Gels, with their unique structural versatility and tunable physicochemical properties, have emerged as promising materials across diverse scientific and engineering domains. Recent advances in gel research highlight their potential in areas such as energy storage, catalysis, drug delivery, environmental remediation, and space propulsion applications. This Special Issue aims to collect recent progress in the design, synthesis, characterization, and application of hybrid and functional gels. Particular attention will be given to gels incorporating novel dopants, hybrid systems that combine organic–inorganic components, and tailored gel structures with enhanced mechanical, thermal, or chemical stability. Contributions that address both fundamental aspects (molecular interactions, gelation mechanisms, rheology) and applied research (green propellants, biomedical engineering, sensors, coatings, and nanocomposites) are especially welcome. By compiling research from diverse perspectives, this Special Issue seeks to provide a comprehensive overview of how hybrid and functional gels are driving innovation in advanced technologies.

Guest Editor

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About the Journal

Message from the Editor-in-Chief

Gels (ISSN 2310-2861) is recently established international, open access journal on physical and chemical gel-based materials. The journal aim is to encourage scientists to publish their experimental and theoretical results in as much detail as possible. General topics include but not limited to synthesis, characterization and applications of new organogels, hydrogels and ionic gels made either from low molecular weight compounds or polymers, composite and hybrid materials where a metal is by some means incorporated into the gel network, and computational studies of these materials in order to provide a better understanding of gelation mechanism. We cordially invite you to consider publishing with us and contribute with your own grain of sand to the advance in this fascinating field.

Editor-in-Chief

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