Special Issue

Polymer-Based Smart Gel Electrolytes for Energy Storage

Message from the Guest Editors

Polymer-based smart gel electrolytes represent a transformative advancement in energy storage technologies, combining the flexibility and processability of polymers with the tunable ionic conductivity and stimuli-responsive behavior of gel systems. This Special Issue, "Polymer-Based Smart Gel Electrolytes for Energy Storage", focuses on the design, synthesis, and application of these functional materials in next-generation batteries, supercapacitors, and hybrid energy storage devices. Key topics include innovative polymer architectures (e.g., crosslinked networks, block copolymers, and nanocomposite gels), ion transport mechanisms, and smart functionalities (such as self-healing capabilities, thermal/electrochemical stability, and adaptive conductivity under mechanical or environmental stimuli).

We invite original research articles, reviews, and perspectives on cutting-edge developments in smart gel electrolytes, aiming to foster interdisciplinary collaboration among chemists, materials scientists, and engineers. This Special Issue seeks to accelerate the translation of lab-scale innovations into practical energy storage solutions for a sustainable future.

Guest Editors

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About the Journal

Message from the Editorial Board

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.

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