



Advanced Hydrogel-Based Materials and Applications

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Message from the Guest Editor

Dear Colleagues,

This Special Issue of *Coatings* is dedicated to recent advances in hydrogel-based material synthesis, characterization, and applications. Natural and synthetic hydrogel-based materials are of great importance in biomedical applications, such as regenerative medicine, drug delivery, drug screening, tissue engineering, biosensors, or anti-biofouling. They also contribute to non-medical areas such as sensing, actuation, anti-marine-creature fouling, energy storage, and water technology. In the last two decades, the number of papers published on novel hydrogels has grown rapidly. Nevertheless, hydrogels are multipurpose materials, and there remains much ongoing research on the synthesis of innovative hydrogel materials and new fields of their applications.

The topics of interest for this Special Issue include, but are not limited to:

- Novel hydrogels for tissue engineering;
- Hydrogels for cancer therapy;
- Drug delivery systems;
- Smart hydrogels;
- Hybrid hydrogel synthesis;
- Hydrogel mechanics;
- Multifunctional hydrogels for the environment;
- Bacterium-resistant hydrogel coatings;
- Hydrogel modifications and properties.





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Message from the Editorial Board

Now more than ever, research is asked to deliver knowledge and technologies to solve the major challenges faced by our society. The development of new materials and devices for (without the ambition to be exhaustive) energy, health and food technology, together with the need for establishing processes that reduce the impact on critical resources and the environment, is indeed in the spotlight of most contemporary research. Surface science and engineering play a key role in this regard, with an incredible potential in delivering new and deep scientific understanding and technical solutions essential to solve most of the major societal challenges.

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