Special Issue

Multiscale Design for Polymer Advanced Manufacturing

Message from the Guest Editors

Polymer-based components are widely used in multifunctional systems: soft robotics, wearable electronics, energy storage, biomedical devices. This Special Issue explores synergies among polymeric mechanical properties, multiscale structural design, manufacturing technologies, focusing on cutting-edge advances in polymer functionalities (e.g., deformation mechanisms, stimuli responsiveness, sustainability).

By fostering dialogue across the "property–structure–process–application" continuum, this Special Issue aims to advance intelligent, sustainable polymer systems to address global challenges in healthcare, environmental resilience, advanced manufacturing. Cross-disciplinary studies integrating materials science, mechanics, systems engineering are particularly encouraged. Topics include (not limited to): Polymer mechanical properties (modeling/simulation); Microstructure control in polymer additive manufacturing (impact of 3D/4D printing parameters (temperature/shear fields) on crystal-amorphous phase transitions, functionally graded material properties); Electroactive polymers.

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Message from the Editor-in-Chief

Since its foundation in 2009, *Polymers* has developed into an internationally renowned, extremely successful open access journal. The editorial team and the editorial board dedicatedly combine open-access publishing and high-quality rigorous peer reviewing. The performance of the journal has proven this strategy to be well-suited and highly successful. This is reflected in the increasing impact factor of *Polymers*, the most recent one being 4.9.

I would like to invite you to contribute to the success of the journal by sending us your high quality research papers. We would be pleased to welcome you as one of our authors.

Editor-in-Chief

Prof. Dr. Alexander Böker
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