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Scientific Machine Learning for Polymeric Materials

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Message from the Guest Editors

Polymeric materials play a key role in supporting the ever-increasing demand for electronics, medicines, plastics, sensors, and the transition to renewable energy sources. This is achieved through polymers' distinct features at different structural and temporal scales (i.e., a subtle change in their atomic or mesoscopic structures leads to a totally emergent functionality). Indeed, scientific datasets in this field are sparse, and include only directly observable quantities, while the underlying processes are either too complex to observe directly. To move towards an accelerated on-demand design for polymeric materials, recent breakthroughs in scientific machine learning (SciML) can be leveraged to explore the interactions of physics at different spatial and temporal scales. We designed this Special Issue to bring together researchers working on SciML (e.g., physics-guided neural networks, physics-informed neural networks, etc.) to exchange ideas, identify and address grand challenges, and possibly reveal multi-scale multi-temporal structures and mechanisms in polymer behaviors (rheology, self-assembly, phase transition, etc.) that can better serve the community.

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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 5.0.

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.

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