

Special Issue

Physicochemical Insights into Functional Polymers

Message from the Guest Editors

A substantial range of functional polymers have been categorized as a special class of materials where chemical constituents and molecular architectures are engineered to deliver desired physical responses. While their applications range from biomedicines to industrial engineering ecosystems, the underlying fundamental physicochemical mechanisms associated with molecular designs, physical properties, interfacial thermodynamics, and phase behaviours remain elusive for the next generation of functional polymers. This Special Issue of *Physchem* aims to bridge the research gap between fundamental organic synthesis, physical chemistry, and advanced functional polymerics using a wide range of perspectives. Thus, we invite contributions that provide deep mechanistic insights into how molecular structure influences macroscopic behavior, particularly by employing sophisticated synthesis protocols, advanced spectroscopic techniques, multiscale modeling, and high-resolution characterization to elucidate the forces driving polymer performance. We welcome original research articles and communications along with comprehensive reviews to advance the fundamentals of functional polymers.

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