

Special Issue on  
**Nanomechanics of Polymer Thin Films**

# CALL FOR PAPERS

Nanometer thin polymer films are emerging as attractive systems to tailor interfacial properties of a variety of materials. Molecular level control of fabrication of such structures in the form of surface-adsorbed films, membranes, or brushes is gaining an increasing interest in advanced technologies relevant for drug delivery, high throughput energy storage devices, environmental purification systems, and tribological coatings. Hence, fundamental understanding of structure-property relation for thin polymer films is crucial to build reliable and system compatible soft structures. In recent innovations, environment-responsive and functional polymers are employed to develop smart interfaces with property-specific structures. Additionally, mechanical reliability is a necessity for advanced applications which is why thin polymer films with morphological hierarchy such as density-controlled polymeric brushes, layer-by-layer assemblies, stratified grafts, organic-inorganic mixed grafts, and nanoparticle-embedded polymer films have been developed. However, mechanical characterization methodologies for thin polymer films and structures are still in its infancy. Further, the contact mechanical models, well implemented for hard thin films, are yet to be appropriately implemented for soft polymeric films.

The present special issue aims to address these issues and highlight the contributions on topics related to nanomechanical characterization for nano- and microscale polymer thin films. Specifically, the purpose of this issue is to publish high-quality research articles and reviews on the novel nanomechanical testing methodologies as well as contributions in establishing appropriate contact mechanical models for structure-mechanical property correlation for polymer thin films.

Potential topics include but are not limited to the following:

- ▶ Development of novel testing tools for the characterization of mechanical properties of polymer thin films
- ▶ Establishing appropriate methodologies to probe mechanical properties for exploring the mechanical compatibility of nanopolymeric structures in novel applications
- ▶ Adhesive, rheological, and tribological characterization of thin polymers films
- ▶ Modelling and simulations of mechanics of polymer thin films
- ▶ Advancements in contact mechanical models for soft polymeric structures

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