Computational Mechanics of Semi-flexible Biopolymer Networks

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Summary

A large number of materials have as their primary constituent networks of fibers or molecules. Examples include the cytoskeleton, tissue engineering substrates, textiles and non-wovens. In most of these examples, understanding the mechanical properties of the network is the key to determine what controls the function of these structures. Recent advances in computational, experimental and imaging techniques provide an increasingly quantitative description for the mechanical properties of fiber networks. This minisymposium aims at bringing together multidisciplinary contributions from experts in mechanics, materials science, and biology targeting various aspects of these complex systems. The topics of the mini-symposium may include, but are not limited to, the following: Gels and polymer networks, The cytoskeletal network, Remodeling and conformational change, Multiphysics and multiscale computational modeling, Computational and experimental models for cellular and tissue biomechanics, Experimental and imaging techniques to measure fiber network microstructure, Image-based multiscale models ....

Target areas

-Computational Mechanics of Materials
- (Bio-) Polymers and Polymer Networks Biological Materials and Properties