

## MULTIPHYSICS OF FIBER NETWORK MATERIALS

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#### ABSTRACT

Many materials of natural and man-made origin are fibrous and a subset of these have a network of fibers as their main structural component. The behavior of these materials is defined by that of the individual fibers, their particular arrangement and mutual interactions within the network and with interstitial material. Identifying the relationship between the structure and properties of such materials is of importance for the understanding of existing fibrous materials and for the design of new materials with custom properties, and represents an active field of ongoing research.

This symposium is dedicated to the investigation of various aspects of the multiscale physics of such materials, including their mechanical and transport behaviors and their functions in biological systems. Discrete level simulations, the development of continuum models that capture the global response while being informed by the subscales, statistical methods, and multiphysics aspects are all of interest in this context.

Specific subjects include tissue mechanics, paper mechanics, technical textiles, fabrics and non-wovens, polymer networks and gels, the cellular cytoskeleton, liquid and heat transport and suspensions rheology.

Theoretical and computational contributions, as well as complementing experimental work and numerical methods development are all welcome.