

**University of Wisconsin-Milwaukee**

**Dept. of Physics  
COLLOQUIUM**

*Soft Network Materials:  
Structure-Properties Relations*

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**3:30 PM (start)      Chem 108**

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Many materials have a stochastic network of filaments as their main structural component and are referred to collectively as 'network materials.' This class includes all biological connective tissue, the extracellular matrix, the intra-cellular cytoskeleton, paper and cellulose-based products, nonwovens, as well as various molecular networks such as rubber, gels and thermosets.

This talk reviews the relation between the structure of athermal networks and the material-scale mechanical properties, focusing on identifying commonalities between these very diverse material systems. Properties of interest include the non-linear elastic response, the viscoelastic response, strength and toughness. The effect of inter-fiber adhesion on network mechanics will be also discussed. The talk provides a comprehensive overview of the mechanics of this broad class of materials.