

Abstract Submitted  
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**Deformation of Entangled Random Fiber Networks** CATALIN PICU, GOPINATH SUBRAMANIAN, Rensselaer Polytechnic Institute — The mechanics of random fiber networks which are not bonded or cross-linked but are subjected to topological constraints imposed by the excluded volume of the fibers is studied by means of a computational model. The fibers do not cross, have linear constitutive behavior in the axial and bending deformation modes and interact with each other frictionally. The system-scale response is highly-non-linear (power law) and hysteretic. The system exhibits a rich dynamics in response to imposed deformation, characterized by intermittency and spatial and temporal correlations of localized deformation (fiber-fiber sliding events). The role of friction in defining the overall system response is discussed.

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