

1092-35-373

Maria-Carme Calderer* (mcc@math.umn.edu), Department of Mathematics, University of Minnesota, Minneapolis, MN 55455. *Liquid crystal elastomers and phase transitions in rod networks.*

We analyze models of anisotropic crosslinked polymers employing tools from the theory of liquid crystal elastomers. The anisotropy of these systems stems from the presence of rigid-rod molecular units in the network. We study minimization of the energy for incompressible as well as compressible materials, combining methods of isotropic nonlinear elasticity with the theory of lyotropic liquid crystals. We apply our results to the study of phase transitions in networks of rigid rods, in order to model the behavior of actin filament systems found in the cytoskeleton (Received August 13, 2013)