

Abstract Submitted
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Filamin cross-linkers as rheology regulators in biopolymer networks BRIAN DIDONNA, University of Minnesota, ALEX LEVINE, University of California, Los Angeles — We report on the nonlinear mechanical properties of a statistically homogeneous, isotropic semiflexible network cross-linked by polymers containing numerous small unfolding domains. This model captures the main mechanical features of F-actin networks cross-linked by filamin proteins, which contain twenty-four such Ig-domains that may unfold under applied strain. We show that under sufficiently high strain the network spontaneously organizes itself so that an appreciable fraction of the filamin cross-linkers are at the threshold of domain unfolding. We discuss via a simple model the cause of this network organization. We also discuss how observation of this critical state validates a mechanism proposed by Crocker *et al.* to explain the weak power law dependence of the measured strain modulus as observed in intracellular microrheology experiments.

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