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Direct imaging of fluctuations in a cross-linked biopolymer network BO WANG, LINGXIANG JIANG, BOYCE TSANG, STEVE GRANICK, Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign, STEVE GRANICK TEAM — Cross-linked networks are ubiquitous in synthetic and biological polymer systems, such as rubbers and cytoskeletons. To model cross-linked networks, several theories have been developed on the basis of different assumptions as to fluctuations in the networks. Here we put these theories to direct test. This talk will describe direct single-molecule imaging of the dynamic fluctuations of junction points in a cross-linked semiflexible polymer (F-actin) network. The actin filaments are cross linked by biotin/avidin. The junction points are selectively labeled to allow nm spatial imaging resolution. The surprising results point to limitations of the prevailing network models.

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