

Abstract Submitted  
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**The confining potential when a biopolymer filament reptates** BO WANG, STEVE GRANICK, University of Illinois, Urbana-Champaign — Using single-molecule fluorescence imaging, we track Brownian motion perpendicular to the contour of tightly-entangled F-actin filaments and extract the confining potential. The chain localization presents a small-displacement Hookean regime followed by a large regime where the implied restoring force is independent of displacement. The implied heterogeneity characterized by a distribution of tube diameter is discussed and quantified. The concept of irregular, polydisperse entanglement length enables quantitative prediction of macroscopic properties such as the plateau modulus and by rational extension could benefit other problems characterized by Brownian motion through meshes. Work performed in collaboration with Juan Guan, Stephen Anthony, Kejia Chen, Sung Chul Bae and Ken Schweizer.

Bo Wang  
University of Illinois, Urbana-Champaign

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