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Dynamics of a fluctuating semi-flexible membrane NATHANIEL TUKDARIAN, AIQUN HUANG, RAMESH ADHIKARI, ANIKET BHATTACHARYA, University of Central Florida — We report our preliminary studies of conformations and dynamics of a fluctuating semi-flexible membrane. Our model of membrane with linear dimension L consists of N^2 ($L = Nb_l$) excluded volume beads connected by anharmonic springs. The stiffness of the membrane is controlled by adjusting the strength κ_b of the bending potential $U_{\text{bend}} = \kappa_b (1 - \hat{n}_i \cdot \hat{n}_j)$ between adjacent elementary plaquettes consisting of three beads at the corners connected by bonds and characterized by normal unit vectors \hat{n}_i and \hat{n}_j . We study the conformations and dynamic fluctuations of the membrane using Brownian dynamics simulation. We show how the radius of gyration scales with N and κ_b , and study characteristics of the transverse fluctuations, the root-mean-square displacement of the center of mass, and the dynamics of the end monomers at each corner.

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