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Universal aspects of conformations and transverse fluctuations of a two-dimensional semi-flexible chain HSIAO-PING HSU, Johannes Gutenberg-Universität Mainz, AIQUN HUANG, ANIKET BHATTACHARYA, University of Central Florida, KURT BINDER, Johannes Gutenberg-Universität Mainz — In this talk we compare the results obtained from Monte Carlo (MC) and Brownian dynamics (BD) simulation for the universal properties of a semi-flexible chain. Specifically we compare MC results obtained using pruned-enriched Rosenbluth method (PERM) with those obtained from BD simulation. We find that the scaled plot of root-mean-square (RMS) end-to-end distance $\langle R_N^2 \rangle / 2L\ell_p$ and RMS transverse fluctuations $\sqrt{\langle l_{\perp}^2 \rangle} / \ell_p$ as a function of L/ℓ_p (where L and ℓ_p are the contour length, and the persistence length respectively) are universal and independent of the definition of the persistence length used in MC and BD schemes. We further investigate to what extent these results agree for a semi-flexible polymer confined in a quasi one dimensional channel.

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