سمینار هفتگی ماده چگال نرم

A coarse-grain elastic lattice polymer model of bacterial chromosomes

Abstract

Supercoiled DNA, often adopt tree-like double-folded, randomly branching configurations. In this context, we studied an elastic lattice polymer model for tightly double-folded ring polymers. This model includes the spontaneous creation and deletion of side branches, which move along the tree graph structure due to local mass transport diffusion. We are extending our elastic lattice polymer model to investigate structure properties of the supercoiled bacterial chromosome. In particular, we investigate the possibility to capture universal properties of bacterial DNA from approximately 10 kb to 1 Mb scale using polymer physics. To this end, we aim to rationalize contact properties between chromosomal loci measured in Hi-C methods.

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