



سمینار هفتگی گروه ماده چگال نرم

Stochastic model for nucleosome sliding under an external force

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Heat-induced diffusion of nucleosomes along DNA is an experimentally well-studied phenomenon, presumably induced by twist defects that propagate through the wrapped DNA portion. The diffusion constant depends dramatically on the local mechanical properties of the DNA and the presence of DNA-binding ligands. This has been quantitatively understood by a stochastic three-state model. Future experiments are expected to allow application of forces on the nucleosome that induce a directed sliding. By extending the three-state model, the present work studies theoretically the response of the nucleosome to such external forces and how it is affected by the mechanical properties of the DNA and the presence of DNA-binding ligands.

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