



سمینار هفتگی گروه
ماده چگال نرم

Bubble Breathing Dynamics in a Heteropolymer DNA

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Abstract

While the statistical mechanical description of DNA has a long tradition, renewed interest in DNA melting from a physics perspective is nourished by measurements of the fluctuation dynamics of local denaturation bubbles by single molecule spectroscopy. The dynamical opening of DNA bubbles (DNA breathing) is supposedly crucial for biological functioning during, for instance, transcription initiation and DNA's interaction with selectively single-stranded DNA binding proteins. In this presentation we review some recent works on the bubble breathing dynamics in a heteropolymer DNA based on a (2+1)-variable master equation and show how one can obtain some information about the sequence of DNA using this approach. Also for a biological sequence of the T7 bacteriophage, quantitative agreement with data from fluorescence correlation spectroscopy (FCS) will be shown.

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