سمینارهفتگی گروه ماده چگال نرم

Elasticity of nucleosomes and its impact on their repositioning dynamics

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Nucleosome, the elemental repeating unit in all eukaryotic chromatin, is a tiny 10x6 nm sized spool composed of 147 base pairs DNA tightly wrapped around an octamer made from 8 histone proteins. A consequence of the organization of DNA into nucleosomes is that all genetic processes must contend with a chromatin substrate. In this research, the effect of inhomogeneities in binding strengths and elasticity of histone octamers to DNA is calculated to show that there are unique binding sites that control overall mobility of nucleosome along DNA. This result is of utmost importance since it will help to understand why certain mutation in histone proteins (so-called SIN mutation) allow cell to survive other mutation that are otherwise lethal.

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