



سمینار هفتگی ماده چگال نرم

The role of DNA shape in protein–DNA recognition*

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Protein–DNA recognition plays an important role in biology, Hence scientists try to provide protein–DNA recognition mechanisms. In this paper that I want to explain, authors introduce a new DNA-protein recognition mechanism. This “readout” mechanism is based on this fact that narrow minor grooves strongly enhance negative electrostatic potential of DNA. They find out interesting results by closing narrow minor-grooves ($\text{width} < 5^\circ \text{A}$) and not narrow minor grooves ($\text{width} \geq 5^\circ \text{A}$) to different amino acids (Arg-Lys-Gln-...). I will discuss about these results, for example “Arginine is enriched in narrow minor grooves”, “AT-rich sequences tend to narrow minor grooves”, “Arginines recognize enhanced electrostatic potentials” and also other investigation have been done by this group using their recognition mechanism.

* I am going to talk about paper “The role of DNA shape in protein–DNA recognition” ,Remo Rohs, Sean M. West, Alona Sosinsky, Peng Liu, Richard S. Mann & Barry Honig, Nature. 2009 Oct 29;461(7268):1225-6.

زمان: شنبه ۸۹/۳/۲۹ ، ساعت : ۱۵:۳۰

مکان: آمفی تئاتر دانشکده فیزیک