



"Soft-Matter Seminar"

"Force-driven separation of short double stranded DNA: Theory and Experiment"

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Abstract:

Short double stranded DNA is used in a variety of nanotechnological applications and for many of them it is of importance to know for which forces and which force loading rates the DNA duplex remains stable. We develop a theoretical model describing the force-dependent dissociation rate for tens of base-pair long DNA duplexes under tension along their axis ("shear geometry") based on a three state equilibrium model and transition state theory. We show that our theory is in good agreement with actual single molecule force spectroscopy results and that, for the description of double stranded DNA separation kinetics, our model is a significant refinement of the conventionally used Bell-Evans model.

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14:00 Uhr

Raum PH 3344

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