

MECHANISMS OF POLYMORPHIC MACROMOLECULE DEFORMATION

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The report presents an approach to the study of conformational induced deformations of a polymorphic macromolecule within the framework of a two-component model. One component (external) describes the deformation of the macromolecule, as the elastic rod, another component (internal) - changes in the conformation of macromolecule monomer units.

The developed approach allows to investigate the physical mechanisms of localized nanoscale deformations of DNA double helix due to the action of external forces on macromolecule structure. The obtained results give a consistent interpretation of observed effects of the deformability of TATA-box, A-tract, allosteric effects in DNA, and also allows explaining the threshold character of DNA unzipping and overstretching [1-3].

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