

CONFORMATIONAL REGULATION IN SINGLE MOLECULE REACTIONS

L.N. Christophorov^{1,2}, *A.R. Holzwarth*³,
*V.N. Kharkyanen*²

¹Bogolyubov Institute for Theoretical Physics,
Nat. Acad. Sci. of Ukraine
(*Kyiv, Ukraine*),

²Institute of Physics,
Nat. Acad. Sci. of Ukraine (*Kyiv, Ukraine*),

³Max-Planck-Institut für Strahlenchemie
(*Mülheim a. d. Ruhr, Germany*)

S u m m a r y

Modern methods of single-molecule detection and spectroscopy make it possible to directly monitor the long series of reaction cycles of one macromolecule in real time. Within the previously developed theory of substrate-conformation interaction, we give a simple method of calculating the main statistical characteristics of single-molecule trajectories reflecting the modulation of a reaction cycle by the slow conformational dynamics of the macromolecule. Computer simulations show considerable qualitative distinctions of such characteristics from those calculated within the standard chemical/Michaelis kinetics.