

## ON THE SCATTERING OF DNA REPLICATION COMPLETION TIMES

**Meilikhov E.Z., Farzetdinova R.M.**

Kurchatov Institute, 123182 Moscow, Russia, meilikhov@imp.kiae.ru

Stochasticity of Eukaryotes' DNA replication should not lead to large fluctuations of replication times which could result in mitotic catastrophes. Fundamental problem that cells face is how to be ensured that entire genome is replicated on time. We develop analytic approach of calculating DNA replication times, that being simplified and approximate, leads, nevertheless, to results practically coincident with those which have been obtained by some sophisticated methods. In the framework of that model we consider replication times' scattering and discuss the influence of repair stopping on kinetics of DNA replication. Our main explicit formulae for DNA replication time  $t_r \propto \sqrt{\ln N}$  ( $N$  is the total number of DNA base pairs) is of general character and explains basic features of DNA replication kinetics.