



Translational Innovation in **M**edicine and **C**omplexity

Université Grenoble Alpes – CNRS (UMR 5525)

Post-doctoral position in polymer physics of bacterial DNA

(Location: Grenoble, France)

Chromosome segregation is a fundamental process of the cell cycle allowing organisms to transfer genetic information to daughter cells. In all organisms, this process is tightly regulated to avoid loss of genetic information. It involves specific mechanisms that remain to be fully understood.

In this project, we will use polymer physics concepts and simulations to address this problem in the context of bacteria. Specifically, the recruited post-doc will develop realistic *in silico* models of DNA replication and segregation taking into account the topological properties of bacterial DNA (DNA supercoiling). These will be used to quantitatively interpret experimental data produced in the context of an interdisciplinary project gathering the groups of [Olivier Espéli](#) (Collège de France, Paris) and [François Cornet](#) (University Paul Sabatier, Toulouse).

The post-doctoral contract is for 2 years with extension possibilities. The recruited post-doc will benefit from 1) a rich scientific environment focusing on biology and health questions (from experimental evolution to translational application) from [our team TrEE](#) and [our embedding laboratory TIMC](#), 2) a rich university environment including physics labs working at the interface with biology (e.g. [LIPhy](#)) and 3) a dense network of collaborations, including [Ralf Everaers group](#) (in not so far ENS Lyon) with whom we are developing multi-scale models of bacterial DNA ([MIMIC project](#)).

Candidate's profile: we are looking for a highly motivated candidate with a strong background in statistical physics, polymer physics, computational or mathematical methods, with an interest to apply computational and simulation tools to understand the functioning of living organisms. Advanced skills in programming are required and a previous interdisciplinary experience in connection with biological issues is a plus, although not necessary.

Contacts: to apply, please send your CV, a motivation letter, and the names and contact information of two references to [Ivan Junier](#): ivan.junier@univ-grenoble-alpes.fr



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