Research period: Position available

The group of D. Holcman at ENS dedicated to Applied Mathematics and Computational biology offers the following training period at a graduate or postgraduate level. Fields covered are stochastic processes, image processing and data analysis.

Title: Extracting chromatin properties of the nucleus from analysis of trajectories of several correlated locus.

Project: This project aims at combining mathematical modeling and stochastic coarse-grained simulations to extract novel statistics from trajectories of two particles that represent two monomers located on a single polymer. The biological framework for this project is accidental DNA breaks (DSB) repair and the analysis of Single Trajectories of DNA locus in vivo. We shall combine stochastic polymer physics, modeling, numerical simulations and data analysis to extract features and predict the dynamics of two correlated particles. We will analyze trajectories generated by polymer models using numerical simulations. Within this approach, we will extract biophysical parameters and reconstruct the local physical properties of the chromatin structure in vivo. Collaboration with K. Dubrana (CEA) and S. Gasser (FMI, Basel).

Duration: at least 6 months.

References:

Candidate: The candidate for this position is expected to be strongly motivated by mathematical and biological sciences. He/she should have a background in applied mathematics. The candidate should be passionate by her/his research. Students are encouraged to write a publication at the end of the training period. We strongly encourage student motivated to continue on a PhD thesis. The group has a strong tradition in training students that are joining top international institutions.

Applicants should send
- a letter of application,
- curriculum vitae,

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