

Postdoc: Multiscale approaches and phenotypic diversity. Lyon/Paris.

A postdoctoral position at the math-bio interface is available to work on project "A micro-macro analysis of the stochastic evolution of phenotypic traits diversity" in collaboration with the following research groups located in Lyon and Paris:

- NUMED Inria team (UMPA, ENS de Lyon)
Hélène Leman
<http://www.umpa.ens-lyon.fr/recherche/numed>
- Modélisation de la biodiversité (IBENS, ENS Paris)
Hélène Morlon
<http://www.biologie.ens.fr/phyloeco/index.html>
- SMILE group (Collège de France):
Amaury Lambert
<http://www.lpsm.paris/smile>

Modeling the evolution of the phenotypic traits of species, such as their body mass, morphology, or life history traits, is fundamental to understanding the different factors that shape this evolution. At the macro-evolutionary scale (i.e. on geological time scales), trait evolution is traditionally modeled by a Markov process, such as a diffusion, or a diffusion with jumps, running on a species phylogeny. Coupled with inferential approaches, these models allow us to study the modes and rates of trait evolution from observed traits of fossil and/or present-day species. The aim of this project is to study the deterministic and stochastic macro-evolutionary outcomes of micro-evolutionary mechanisms (mutation, dispersal, adaptation, genetic drift) underlying phenotypic evolution. The approach will combine techniques of quantitative genetics, adaptive dynamics, and comparative phylogenetics. This work will allow us to better understand, partition and predict the effects of ecological and micro-evolutionary mechanisms in the dynamics of traits at the macro-evolutionary scale and more specifically, to understand and identify its stochastic component. The mathematical techniques considered will include micro-macro scale limits, studies of stochastic differential equations and Markovian processes.

We are looking for a highly motivated post-doc with interest in phenotypic evolution, phylogenetics and probabilistic models. Applicants should have a good background in probability and in evolutionary theory. Programming skills would be welcome. Excellent written, verbal, and interpersonal skills are desirable. Speaking French is not mandatory. The project is funded by IMPT (<https://impt.math.cnrs.fr/>). The position is for two years. It will be hosted at UMPA, ENS de Lyon, with regular visits in the Parisian labs.

Starting date is expected to be before the end of this year. Salary will be commensurate with experience and will range from 25 to 30 K€/yr (free of charge but before income tax) - schools and healthcare in France are cheap when not free.

Questions could be sent to helene.leman@inria.fr and helene.morlon@bio.ens.psl.eu

Applications will be received until Sunday, June 27.

To apply please submit :

- i) a cover letter summarizing research interests and expertise;
- ii) a CV;
- iii) a list of publications;
- iv) names and contact information of two references,

all in a single pdf document sent to the three of us :

- helene.leman@inria.fr,
- helene.morlon@bio.ens.psl.eu,
- amaury.lambert@college-de-france.fr.

Please submit simultaneously your application on <https://bit.ly/2SBSQqy>