Laboratoire Matière et Systèmes Complexes
CNRS | Université Paris Diderot | Paris, France.
Pascal Hersen | http://lab513.fr/labr/

Postdoctoral Position in Quantitative Biology & Biophysics. Optogenetic control of gene expression and Cell-computer Interfaces.

We are looking for postdoctoral candidates with a background in synthetic biology, physics or engineering to work on one of several projects related to the optogenetic control of live cells.

Cells are complex, autonomous genetic machines with rich information processing capabilities. Synthetic Biology builds on these properties to design novel, synthetic genetic programs in cells to carry out useful functions. Yet, safety and efficiency issues require creation of synthetic circuits that are reliable over a large range of operating conditions and stable to all sorts of external perturbations. This is a tremendous challenge since the robustness of a genetic circuit is limited by its dependency on the cellular host machinery and the fundamental stochastic nature of gene expression. Taking inspiration from physics and engineering, we aim at using microfluidics, optogenetic and control theory to take control of yeast cells and by that mean pilot robustly and in real time the behavior of synthetic circuits.

We are looking for candidates with an excellent track-record and who are excited to study and design cell-machine interfaces in an international and interdisciplinary research team. A solid basis in synthetic biology, quantitative biology or physics is required. Experience in optogenetic, *DIY* instrumentation, image analysis, microfluidics, coding (*e.g.* Matlab, python) are welcomed. Postdoctoral funding comes from an ERC grant.

Starting date: April 2017 | **Deadline for application:** open until filled

To apply please send a motivation letter, a CV, and emails of two references.

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About us

We are an interdisciplinary team working on the physics of living systems. A Common theme in our research projects is the study of how information flows in biological systems, from signaling pathways in single cells, to collective processes in embryogenesis and multicellular organisms. We use microfabrication, microfluidics, synthetic biology, fluorescence microscopy and mathematical modeling to study and interact with living cells and organisms. Our long-term goal is to improve our ability to interact and control live cells in real time and to create bio-hybrid machines. Our team is part of the MSC laboratory in the Physics department of the University Paris Diderot (Paris, France) and benefits from state of the art core facilities, an excellent research environment and the support of several grant agencies.

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