Post-doc position

Active phase transitions in the cell nucleus

Deadline: September 15th 2021

Place: Collège de France
Center for Interdisciplinary Research in Biology
11, place Marcelin Berthelot, 75005 Paris

Team: *Multiscale Physics of Morphogenesis* www.turlierlab.com

Supervision: Hervé Turlier, team leader herve.turlier@college-de-france.fr
Phone: +33.1.44.27.14.10

Duration: 12 months, starting from September 2021 - possibility to extend to 24 months

Salary: between € 2,200 and € 2,500 net monthly depending on experience

Application: please send 1 CV, 1 motivation letter and 2 recommendation letters to herve.turlier@college-de-france.fr

Activities: This project aims to develop non-equilibrium models of liquid phase transition regulated by biochemical reactions. The research will focus particularly on the growth and coarsening dynamics of PML nuclear condensates. It will be performed in the theoretical team *Multiscale Physics of Morphogenesis* led by Hervé Turlier, and in tight collaboration with the experimental team *Nuclear Organization and post-translational control in physio-pathology* led by Prof. H. De Thé & Dr. V. Lallemand at Collège de France, worldwide specialists of PML nuclear body biochemistry and cellular biology. It will include strong theoretical aspects and require numerical modelling. More details on the project will be given during the oral interview.

Missions: The successful candidate will develop physical models and numerical simulations of nuclear condensate dynamics, leveraging and going beyond recent developments in the active field of biological phase transition. The work will also involve image analysis, and can include data analysis aspects based on physics-informed deep learning if the candidate wishes. She/he will have to interact with other members of the team and will work closely with biologists. She/he will have to present her/his results at scientific conferences, to write scientific articles and to actively participate in the scientific and social life of the team and host Institute.

Expected profile: The candidate should hold a PhD in physics and demonstrate very good theoretical skills. She/he should have already demonstrated the ability to publish in international peer-reviewed scientific journals. Previous experience in physical modelling of biological phase transitions will be a strong asset, and a proved capacity to collaborate with biologists will be particularly appreciated. A great autonomy in work, and research initiative will be necessary. Proficiency in English and good communication skills are expected.

Working environment: The successful candidate will be welcomed into the interdisciplinary team "Multiscale physics of morphogenesis" led by Hervé Turlier which is composed of ~10 people. The team is located at the Collège de France, in the heart of the Latin Quarter in Paris. Integrated within the PSL University, and close to other major institutions such as the Ecole Normale Supérieure and the Institut Curie, the Collège de France constitutes an exceptional scientific environment unique in the world. The successful candidate will have access at an individual workstation in renovated premises, to a powerful laptop and to a high performance computing cluster fully dedicated to the team.