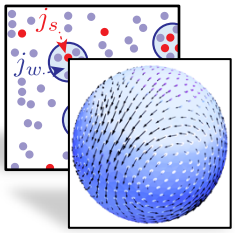
UNIVERSITÉ DE GENÈVE

FACULTÉ DES SCIENCES

PhD position available in the group "Theoretical physics of developmental biology", School of Life Sciences, UNIGE



Project description

In our research group, we use approaches from theoretical physics of soft matter and statistical physics to address biological questions. The general strategy is to identify key physical parameters playing a role in cellular and developmental process and ask how molecules in the cell regulate them. To understand this, we collaborate with experimentalists working in the fields of cell and developmental biology.

During tissue development, complex self-organized patterns must form that arise from the interplay between cell fate decision and cell mechanics and deformation. The goal of the project is to understand how robust and precise pattern formation can occur during the formation of veins on the wing of Drosophila, using numerical simulations and analytical approaches connected to the physics of active matter. The project involves close collaborative work with experimentalists working on this question.

Candidates with a background in theoretical physics or applied maths and interested in answering biological questions are encouraged to apply.

Administrative requirements

MSc, MRes, Diploma or an equivalent degree in physics or applied mathematics

Excellent English language skills, knowledge of French is not required.

Applicants should send (deadline 15 November 2020) the following documents to Prof. Guillaume Salbreux (guillaume.salbreux@unige.ch):

- Motivation letter (1 page)
- Detailed CV, including a summary of the candidate's research experience
- Contact details of at least two referees

OR apply online at the PhD school of Life Sciences:

https://lifesciencesphd.unige.ch

About the employee

The University of Geneva (UNIGE) is world-renowned for its research and is among the top 1% best universities in the world. We offer an attractive research environment and salaries according to swiss standards.

References: Patterning and growth control *in vivo* by an engineered GFP gradient, Science, 2020; Mechanochemical Crosstalk Produces Cell-Intrinsic Patterning of the Cortex to Orient the Mitotic Spindle, Current Biology, 2020; Tissue curvature and apicobasal mechanical tension imbalance instruct cancer morphogenesis, Nature, 2019; Stability and Roughness of Interfaces in Mechanically Regulated Tissues, Phys Rev Lett, 2018, Mechanics of active surfaces, Phys Rev E, 2017; Active dynamics of tissue shear flow, New J. Phys, 2017, The Physical Basis of Coordinated Tissue Spreading in Zebrafish Gastrulation, Dev Cell, 2017.