



Position Announcement Research Engineer or Postdoctoral Fellow



Development of Novel Microsystems for Cellular Nuclear Mechanics

One-year position
Hydrodynamics Laboratory (LadHyX)
Ecole Polytechnique, France

Project Summary

Prof. Abdul Barakat's Vascular Biomechanics and Bioengineering laboratory at Ecole Polytechnique has an opening for a Research Engineer or a Postdoctoral Fellow in the area of nuclear biomechanics. This project falls within the group's focus on understanding how biophysical cues influence the structure and function of vascular endothelial cells that line blood vessels. We have recently shown that culturing endothelial cells on microfabricated substrates consisting of parallel arrays of micron-scale ridges and grooves allows control of nuclear shape and organization. We believe that these findings open avenues for new approaches to studying cellular nuclear mechanics. The goal of the position is to expand our understanding of nuclear mechanics using this microfabricated system and to explore the potential of using this system in a technology transfer setting.

The candidate will work closely with a post-doctoral researcher, Dr. Claire Leclech, who initiated the project. The project will be conducted in a highly interdisciplinary environment that includes physicists, biologists, and engineers and will involve extensive collaborations with physicians. The position will also provide a unique opportunity for involvement in the process of technology transfer at an early stage.

Specific tasks

- Further assessment of the capabilities of micro-grooved substrates for characterizing normal and abnormal nuclear mechanics.
- Exploration of the applicability of the system to other cell types such as fibroblasts, myoblasts, or cancer cells.
- Development of a prototype device that can be used in a technology transfer setting.

Desired skills

We are looking for a motivated, curious and autonomous candidate, eager to work in an interdisciplinary environment. The ideal candidate would have training in biophysics and/or bioengineering, with experience in microfabrication/microfluidic techniques and cell culture. Experience in image and data analysis is also highly desirable.

Further information

The position is open immediately with an initial appointment for one year. The starting date is negotiable. For inquiries, please contact Claire Leclech (claire.leclech@ladhyx.polytechnique.fr) and Abdul Barakat (abdul.barakat@polytechnique.edu).