

Postdoctoral Fellow in Polymer Chemistry and Physical-Chemistry at the Laboratoire de Chimie des Polymères Organiques.

Project Summary:

A postdoctoral fellow is sought to work on an interdisciplinary project targeting **the use of block copolymer materials for lithographic applications**. Indeed perfectly ordered microstructures with nanometrically defined periodicity offer promising opportunities in microelectronic applications and nanotechnologies for the production of high-density magnetic storage media, plasmonic based devices and advanced CMOS digital circuits. To produce long-range ordered two-dimensional arrays inherent to such technologies, the hybrid combination of “bottom-up” self-assembly and “top-down” guiding patterned templates has been successfully introduced. This has led to new technological breakthroughs wherein the self-assembly of block copolymers (and in particular poly(styrene)-b-poly(methyl methacrylate)) are the cornerstone of the “bottom-up” nanofabrication processes through their segregation behavior into periodic mesostructures.

While directed self-assembly based on poly(styrene)-b-poly(methylmethacrylate) block copolymers approaches industrial maturity, new systems with the ability to self-assemble with sub-10 nm features need to be evaluated taking into account the integration requirements (in terms of solvent, thermal budget, etching contrast,...). This project in collaboration with Arkema aims to design and develop novel block copolymers with enhanced resolution to target periodic mesostructures with sub-20 nm periodicity for both contact shrink and line/space applications. The postdoctoral fellow will as well study the self-assembly of such block copolymers in the thin film configuration in order to establish a baseline process for the integration of these materials in lithographic facilities.

Location: LCPO, Bordeaux, France

Duration: 18 months

Salary: About 2500 € gross / month

Required Skills:

Applicants should hold a PhD in Polymer Science with a solid expertise in polymerization techniques and structural characterization of complex systems. Scientific expertise in the study of the self-assembly of block copolymers is highly desired. Team capability and good skills in English are required.

Contact:

Applications will comprise the names of two references and a CV with a publications list.

Dr. Guillaume Fleury gfleury@enscbp.fr

Pr. Georges Hadziioannou hadzii@enscbp.fr