Fully funded PhD position in Lyon

Context

Applications are invited for an ERC funded doctoral researcher position to work with Benjamin Abécassis at the Laboratoire de Chimie at Ecole Normale Supérieure de Lyon on **shape shifting ultra-thin colloidal nanoplatelets.** The overall goal of the project is to exploit the ligand induced mechanical instability of thin nanoplatelets to synthesize new chiral and adressable nanoparticles. With a fine control over the surface chemistry of the 2D particles, we will create a wide variety of 3D shapes such as helices, twists and rolls. Moreover, minute changes on the ligand induced forces can induce dramatic shape-shifting between these different geometries. Our goal is to use this general principle to establish a new class of nanostructures that current synthetic strategies can not afford. Within this general framework, **the aim of PhD is to develop (*in situ*) scattering methods for structural characterization of 2D nanoplatelets with complex shapes, their formation mechanism and their shape shifting.** The doctoral researcher will work in strong collaboration with other members of the team who study the synthesis, shape control and surface functionnalization of the nanoplatelets using experiments and molecular dynamics simulations. More context on the project can be found in this recent perspective: Guillemeney *et al*, Curvature and self-assembly of semi-conducting nanoplatelets, Communications Chemistry, 2021

Profile

We are more specifically looking for a physicist or physical chemist with a good academic track record. The PhD will focus on **X-ray scattering experiments on nanomaterials** and the candidate should have an interest in materials science, crystallography, colloidal nanocrystals, nanoparticles, soft-matter. Previous experience in these fields is not mandatory and strong candidates with a will to learn in these areas are encouraged to apply. The successful candidate will be in charge of small angle and diffraction data acquisition at synchrotron light sources, neutron sources or other larger scale facilities, SAXS data acquisition at the lab on the recently acquired SAXS experiment, data acquisition of high energy diffraction patterns at synchrotron light sources (total scattering), data treatement and programming in Python.

Practical details

Informal inquiries by email or phone are welcome. The appointement is for 3 years (the legal duration of a PhD in France). The start date is flexible but should be between september and december 2022. Please send a CV and the name of at least 2 references. Application deadline is May 2nd 2022 but the position will remain open until filled. We offer a competitive salary (2135€ gross salary) with full social security cover. The lab is located in École Normale Supérieure de Lyon in the south of Lyon, close to the city center, is easily accessible by public transportation and provides researchers with an ideal environment.

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