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# Post-doctoral Researcher Position

## Self-assembly of colloidal liquid crystal in levitation (SECOLEV)

The candidate will implement an acoustic levitator to study in real time the self-organization of colloidal liquid crystal in levitated droplets. He/she will organize anisotropic one-dimensional colloidal materials (gold nanoparticles, cellulose nanocrystals and imogolite nanotubes) in levitation with the aim to investigate how the aspect ratio of the particles and the shape of the drop influence the final structure of the material. Levitation allows going beyond the state of the art of evaporation induced self-assembly techniques by (1) self-assembling nanoparticles without substrate (2) tuning the shape of the drop as a function of the applied voltage in order to study 3D confinement. The resulting materials will be investigated ex situ by polarized optical microscopy (POM) combined with observations in scanning electron microscopy but also by time-resolved small angle X-ray scattering (SAXS) experiments in collaboration with the SWING beamline (synchrotron SOLEIL). The device studied within the frame of SECOLEV will be duplicated and made available for the users of the beamline.

**Requirement and qualification**

The candidate must hold a PhD degree in materials science or physics. We are looking for a candidate with a background in colloidal science and/or self-organization of nanoparticles and in the use of light scattering techniques. The work will consist in self-assembling NPs in levitation and investigating the structure by various techniques (SEM, POM, SAXS). The candidate will design a humidity-controlled chamber to control evaporation rate and perform in situ measurements, with the help of engineers at LPS. Excellent communication skills (both written and oral) in English are expected while knowledge of French is not mandatory. The candidate must not have more than 2 years of research experience after his/her PhD.

**Additional information**

The project is funded by the Labex PALM and involves a 24-months full-time contract with forecast starting date before december 2022. The project will take place at the *Laboratoire de Physique des Solides (LPS)* at Paris-Saclay University (Orsay, France) under the supervision of Dr. Cyrille Hamon and Dr. Erwan Paineau. Part of the work will be performed on the beamline Swing at SOLEIL synchrotron (in close collaboration with Dr. Thomas Bizien). Salary after tax is fixed to 2200 €/month.

If interested, please e-mail your CV and a brief statement of interest to Dr. Cyrille Hamon and Dr. Erwan Paineau at cyrille.hamon@universite-paris-saclay.fr; erwan-nicolas.paineau@universite-paris-saclay.fr