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<http://sams.ics-cnrs.unistra.fr/recherche/auto-assemblages-fluores/>

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Open PhD position at the Institut Charles Sadron (CNRS) Strasbourg

Hierarchically Organized 2-D and 3-D Self-Assembled Soft Matter Systems

We have an open PhD position (3 years) for a highly motivated candidate with a background in physical chemistry of soft matter and self-assembly. Skills in organic chemistry are welcome. The topic of the Thesis covers different aspects of **hierarchically organized two-dimensional and three-dimensional self-assembled systems**. More particularly, the Thesis will focus on the design of novel nanopatterned molecular systems self-assembled in two-dimensional planar films, as well as in three-dimensional microbubbles useful for diagnostic and therapy. Emphasis will be on the mechanistic understanding of hierarchical structure formation. The work will include the synthesis of fluorinated amphiphiles, elaboration of the patterned self-assembled colloidal systems, and their characterization mainly by interface rheology, atomic force microscopy, Brewster angle microscopy, electron microscopy and light scattering. The Thesis is financed by an ANR Grant in a collaborative Project with Prof. M. Tanaka (Heidelberg, Germany). We have also access to theoretical and additional experimental tools such as flicker spectroscopy, and surface-sensitive methods, such as grazing-incidence small-angle X-ray scattering (GISAXS) and X-ray reflectivity.

Main research field: Physical chemistry

Starting date: March 1, 2015

Location: Institut Charles Sadron (CNRS). 23 rue du Loess. 67034 Strasbourg (France).

How to apply: Address your application with CV and expression of interest to Dr. M.P. Krafft (krafft@unistra.fr)

Have a look on some of our recent papers:

1. Krafft, M.P., *Large organized surface domains self-assembled from non-polar amphiphiles*. *Acc. Chem. Res.* **2012**, 45, 514-524.
2. Nguyen, P.N.; Waton, G.; Vandamme, T.; Krafft, M.P., *Reversing the course of the competitive adsorption between a phospholipid and albumin at an air/water interface*. *Soft Matter* **2013**, 9, 9972-9976.
3. Nguyen, P.N.; Veschgini, M.; Tanaka, M.; Waton, G.; Vandamme, T.; Krafft, M.P., *Counteracting the inhibitory effect of proteins towards lung surfactant substitutes: a fluorocarbon gas helps displace albumin at the air/water interface*. *Chem. Commun.* **2014**, 50, 11576-11579.
4. Kovalenko, A.; Polavarapu, P.; Pourroy, G.; Waton, G.; Krafft, M.P., *pH-Controlled microbubble shell formation and stabilization*. *Langmuir* **2014**, 30, 6339-6347.