

**PhD position available in polymer-science / chemistry / nano-science:**

## **Artificial Proteins through Kinetically Controlled Polymer Assembly**

By approaching the size and the principles of structure and function of proteins, synthetic nanoparticles (NPs) could access new domains of functionalities. For example, the dynamic nature of protein activity could be integrated in NPs. The objective of this PhD thesis will be to open this way to polymeric nanoparticles by following a route between biomimetics and synthetic biology.

To obtain such NPs we will use nanoprecipitation of a library of specifically designed amphiphilic polymers. Studying the kinetics of particle formation will be used to control size, structure, and surface properties of the NPs by adjusting polymer chemistry and assembly conditions. Mimicking the surface properties of proteins will then allow to optimize the stability of the particles in biological media and use them to assemble 3D materials in situ upon application of stimuli (pH and electrochemical potential).

The PhD student will thus be able to learn a variety of techniques ranging from polymer chemistry, over NP assembly and characterization to the study of their behavior in biological systems.

The PhD position is available starting from October 2019 in the *Nanochemistry and Bioimaging* team of the *Laboratory of Bioimaging and Pathologies* at the University of Strasbourg. Our lab offers a strongly interdisciplinary and international environment with researchers from chemistry, physics, and biology. The lab features up-to date chemical synthesis facilities and equipment for physicochemical characterization, fluorescence imaging and cell culture. The position will be supported for 3 years by a grant from the FRC (Fondation pour la Recherche en Chimie/ Frontiers Research in Chemistry).

Candidates should have a master degree in polymer/organic chemistry or materials science. We expect the candidates to have a strong background in polymer chemistry and/or organic chemistry, physical chemistry, and to be highly motivated to work on an interdisciplinary project at the frontiers of chemistry, polymer science, and biomaterials.

To apply, please send a brief cover letter describing your research interests and why you are interested in joining our group, your university grades, your CV, and one to two references or recommendation letters (pdf) to Andreas Reisch (reisch@unistra.fr).

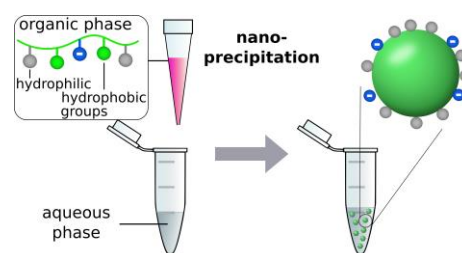


Figure 1. Formation of nanoparticles through nanoprecipitation of amphiphilic polymers.

Laboratoire de Bioimagerie et Pathologies,  
UMR 7021 CNRS, Faculté de Pharmacie,  
Université de Strasbourg,  
74, Route du Rhin,  
BP 60024, 67401 Illkirch, France.

Tel: +33 (0) 368 85 42 66

Nanochemistry and Bioimaging Group: <http://www-lbp.unistra.fr/rubrique78.html>

A. Reisch: [http://www-lbp.unistra.fr/auteur78.html?id\\_article=302](http://www-lbp.unistra.fr/auteur78.html?id_article=302)