

Increasing resolution in Small Angle Neutron Scattering (SANS) experiments by amino acid selective protein deuteration

**Three-Year PhD position held jointly between the Centre de Biologie Structurale
(Montpellier) and the Institut Laue-Langevin (Grenoble)**

Project: With the present PhD project, we aim at enriching the structural and dynamic information of Small Angle Neutron Scattering (SANS) data and providing new avenues for the incorporation of scattering data in integrative structural biology platforms. The key element of the proposed approach will be the selective incorporation of deuterated and hydrogenated amino acids in proteins. In addition of sample production and SANS data collection, the student will develop robust computational approaches to optimize the experimental parameters to derive a maximum amount of information from a limited number of protein samples and SANS measurements. This novel approach will be applied to the structural and dynamic study of flexible enzymes involved in plant cell wall degradation.

Candidate: We are seeking a highly motivated PhD candidate with a master degree in biology, biochemistry, biophysics or chemistry. Knowledge of biochemistry, scattering techniques or computational approaches will be appreciated. This project will give the successful candidate the opportunity to take part in a highly interdisciplinary project with a biotechnological focus. We are offering an international and interdisciplinary working environment and close contact with experts in neutron scattering, protein production and molecular modelling. An initial period of 8 months will be spent at the CBS-Montpellier and the rest of the project will be developed at the ILL. The student will work on cutting-edge large-scale instrument, on a highly multidisciplinary campus located at the heart of the French Alps. The candidate will be employed for a period of three years. Details about the salary and working conditions can be found at <https://www.ill.eu/careers/all-our-vacancies/phd-recruitment/phd-work-at-the-ill>.

Application: Applications and informal queries about the project and the labs should be addressed to Pau Bernadó (pau.bernado@cbs.cnrs.fr), Frank Gabel (gabelfrank@ill.fr) and Anne Martel (martela@ill.fr). Interested candidates should send their CV and a cover letter describing their research interests and motivation.

Some Related Publications of the Groups:

Elena-Real CA, et al. *Nat. Struct. Mol. Biol.* 2023, 30, 309-32

Estaña A, et al. *Structure*, 2019, 27, 381.

Urbanek A, et al. *Angewandte Chemie*, 2018, 57, 3598.

Martel A, et al. *J. Am. Chem. Soc.*, 2017, 139, 137.

Sonntag M, et al. *Angewandte Chemie*, 2017, 56, 9322.

Lapinaite A, et al. *Nature*, 2013, 502, 519.