

## VACANCY

The Institut Laue-Langevin (ILL), situated in Grenoble, France, is Europe's leading research facility for fundamental research using neutrons. The ILL operates the brightest neutron source in the world, and welcomes over 2000 visits of scientists per year to carry out world-class research in a wide variety of scientific fields. Funded primarily by its three founder members: France, Germany and the United Kingdom, the ILL has also signed scientific collaboration agreements with 10 other countries. Our Large Scale Structures group, in collaboration with Elspeth Garman (Oxford, UK), currently has a vacancy:

### Post-Doctoral Fellowship in Structural Biology

X-ray crystallography is the most-prolific technique in Structural Biology, but suffers from radiation damage, which limits the accuracy of the macromolecular structures. The introduction of cryo-cooling techniques greatly reduced the global radiation damage rate and was standardized on all X-ray crystallography beamlines at Synchrotrons over the past decades. X-ray damage signature is visible on diffraction patterns with loss of resolution, but also in electron density maps, with visible damage on acidic residues and their decarboxylation, as well as the breakage of disulfide bridges. To further understand the origin and differences in damage specificities between residues within a crystalline protein, we will use a combination of neutron and X-ray crystallography. Neutron crystallography will provide critical information on the protonation states of the various acidic residues, without damaging the crystalline material, while the damage will be then monitored with X-rays.

We therefore are looking for a highly motivated Structural Biologist with demonstrated experience in macromolecular crystallography. The ideal candidate will have a deep understanding of this methodology and broad experience using the computational tools required for structure determination.

#### Duties:

The Large Scale Structures (LSS) group comprises a range of instruments designed to carry out studies on the structure of matter on a scale from a few Ångströms to hundreds of nanometers. The range of science covers polymer and colloid science, structural biology, materials science and magnetism.

Working within our LSS group, your research program will be focused on:

- Managing the project from sample preparation to structure determination with multiple potential targets in parallel.
- Protein purification and crystal growth of the various systems of interest. A divide and conquer strategy will be applied to speed up the process during the time of funding.
- Diffraction data collection at neutron (ILL, LADI/DALI) and X-ray sources with a specific design of sequential irradiation.
- Model determination, refinement and analysis from both neutron and X-ray diffraction data.

The successful candidate is expected to carry out a research program in broad relation to the experimental activities at the institute.

#### Qualifications and experience:

- Ph.D. in chemistry, computational biology, chemical physics, or related fields.
- Expertise in protein expression, purification and crystallization.
- Understanding of Structural Biology methods.
- Expertise with a broad range of software tools in protein crystallography.
- Peer-reviewed publications in Structural Biology or related fields.
- Excellent communication skills in English, both written and verbal.

#### Desirable Skills and Experience:

- Familiarity with protein perdeuteration.
- Familiarity with protein modifications to improve their ability to crystallize.
- Experience with programming (Python, C++) to develop new analytical tools.

#### Language skills:

As an international research centre, we are particularly keen to ensure that we also attract applicants from outside France. You must have a sound knowledge of English and be willing to learn French (a language course will be paid for by the ILL). Knowledge of German would be an advantage.

#### Notes:

**This post is located in Grenoble, France** and can be subject to administrative screening.

Starting date is ideally September 2020.

**Post-Doctoral contract of 18 months, renewable for a further 6-month period. Only candidates holding a PhD obtained less than 2 years ago are eligible for post-doctoral positions at ILL.**

Further information can be obtained by contacting Dr. Nicolas COQUELLE, tel.: +33(0)4.76.20.77.29, e-mail: [coquelleni@ill.eu](mailto:coquelleni@ill.eu) (**please do not send your application to this address**).

#### Benefits:

Generous company benefits (expatriation allowance), relocation assistance and language courses may be offered (for more information, please consult our [employment conditions](#)).

#### How to apply:

Please submit your application on line with **a list of publications, a two pages research statement and the names of 3 references, including one from your present work place**, no later than **21.06.2020**, via our website: [www.ill.eu/careers](http://www.ill.eu/careers) (vacancy reference: 20/25).

*We are committed to equal opportunity and diversity; we therefore encourage anyone with relevant qualifications to apply.*