



Mission :

The Research Engineer's main task will be to assist and offer his expertise to the large facility users who come to the materials science beamline D2AM at ESRF. He/she will be developing material characterization techniques using synchrotron radiation. He/she will be conceiving and building state of the art instrumental projects. He/she will be developing scripts and programs to run the experiments, to acquire and treat the 2D detectors data for non-specialist users.

Main Tasks :

- Conducting user experiments on the D2AM beamline, treating the experimental data, contributing to the interpretation and analysis of the results.
- Implementing experimental techniques using synchrotron radiation for structural characterization of materials: microstructures, phase transitions, heterogeneous materials, *in situ/operando structural evolution*, imaging.
- Maintaining contact with the scientific community of materials science in particular in the field of forward scattering and diffraction.
- Treating and visualizing, on the fly, the experimental data from 2D detectors: development of python tools in collaboration with ESRF teams (DAU, BLISS).
- Maintaining a technologic and scientific monitoring.
- On-call duty 24H/24, 6j/7 during beamtimes.

Skills :

- Knowledge in materials science, structure and properties of condensed matter (metals, semi-conductors, polymers).
- Experience in the use of large facilities related to materials science (forward scattering in transmission or in grazing geometry, diffraction (3D-XRD, RXS, CDI ...)).
- Programming skills in languages commonly used in large synchrotron facilities (mainly python). Familiar with Unix operating system.
- Experience in scientific programming and data analysis
- Analytic and synthesis skills, as well as writing and oral presentation skills.
- Proficiency in English (Level B2).
- Autonomy and adaptability.
- Teamwork capability.

Context :

The Néel Institute manages with the CEA-IRIG, the CNRS-OSUG (Observatoire des Sciences de l'Univers de Grenoble) and the IBS (Institut de Biologie Structurale), 5 French CRG (Collaborating Research Groups) beamlines at the ESRF (www.f-crg.fr). A team of 20 people full-time equivalent fulfills this national mission 24h/24 and 6d/7 for 200 days of beam per year. With the new ESRF-EBS source, the new properties of the beam push the limits towards higher coherence, higher brilliance (50 times), smaller beam size ... and open the doors to increasingly specialized experiments: characterization down to 1 - 10 microns, 10 to 100 milliseconds.

The research engineer will be working within the F-CRG unit at the ESRF. He or she will depend from the CRG pole of the Néel Institute under the direction of the D2AM beamline responsible.

The D2AM beamline (<https://www.esrf.eu/UsersAndScience/Experiments/CRG/BM02>) welcomes around 40 teams of users per year. The Research Engineers in charge of its operation contribute to the realization of experiments as « local contact » by: preparing the experimental protocol, installing and aligning the

required instruments with the users, participating to the data treatment and analysis. They also maintain a technologic and scientific monitoring to deliver to the users state of the art characterization tools and techniques.

In the framework of the EquipEx+ projects, the MAGNIFIX F-CRG project was accepted and the beamline will benefit from a 1.9 Meuros funding to refurbish its SAXS/WAXS station, its detection instruments and focalizing x-ray optics elements to exploit properly and efficiently the new X-ray source. The research engineer will contribute to the instrumental development and takes advantage of the beamline upgrade to initiate new scientific collaborations.

For more details regarding the CNRS research engineer main tasks, you could check the CNRS emploi-type C1B43 Expert-e en développement d'instrument.

Contacts:

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To apply:

<https://concoursexternesit.cnrs.fr/public/campagne-2021>

Deadline for application:

30 June 2021 at 01:00 pm