

Post-doctoral Position - LUCIA

Division Expériences

Position opens in **September 1st, 2011**. Deadline for submission of application: **August 1st, 2011**

SOLEIL is an optimized 2.75 GeV synchrotron light source of 3rd generation located 25km south of Paris. The first 17 beamlines, several of which using new concepts of undulator sources, are already open to users. A total of 26 beamlines covering the whole energy range from IR to hard X-rays and providing a complete panel of synchrotron radiation based outstanding experimental tools for Physics, Chemistry, Biology, Earth and Environmental Sciences, will be fully operational in 2012. SOLEIL will offer a broad panel of beamlines dedicated to the assessment of surface electronic, magnetic and structural properties. The beamlines currently in operation offer a broad panel of SR-based techniques from spectromicroscopy in IR and VUV to X-ray absorption, diffraction and scattering. A permanent staff of 358 people in the Experiments, Source and Accelerators Divisions, Technical and Computer Support Services and Administration operate the installation for users and in-house research.

1. Position (m/f)

The post will be on the LUCIA beamline.

"LUCIA" (Line for Ultimate Characterisation by Imaging and Absorption) is a "tender" (0.8-8 keV) X-ray microprobe with capabilities for chemical speciation by x-ray absorption spectroscopy (μ XAS) and for elemental mapping by x-ray micro-fluorescence (μ XRF). It allows the possibility to measure heterogeneous samples at a micron size and to combine these two element-specific and non-destructive techniques.

A monochromatic beam of μ m size is incident on a sample which is carried on a scanning x-z stage. μ XRF shows the location of the elements, their relative abundances, and with which other elements they are associated. One can take advantage of the monochromatic beam which allows to identify different elements by their absorption edges. After cartography of the sample by fluorescence, interesting spots can be analyzed by XAS to determine the speciation (local chemistry, quantitative determination of the local geometric structure around the absorbing atom) of the elements and how this depends on the different components. μ XRF and μ XAS can be combined with other micro techniques like Raman spectroscopy to give complementary information on the sample. The energy range offered by the beamline corresponds to excellent performances of SOLEIL in terms of brilliance. It allows XAS experiments at the K edge of elements from Na to Fe, L edges from Ni to Gd, and M edges of rare earths and actinides. In a near future we expect to extend this energy domain down to 400 eV, making then accessible to even more absorption edges.

2. Mission

The candidate will take part in the general operation of the beamline and future development, under the coordination of the beamline responsible. More specifically, he/she will take part to the users support and training as well as beamline setup, maintenance and instrumental development (upgrade of the experimental end-stations). The candidate will be encouraged to develop his/her own research program in a team spirit. Projects at the interface between advanced material sciences and chemistry with potential perspectives in (bio) technological applications (sensors, captors, energy storage, mesoporous materials...) and/or in the field environmental sciences (light capture...) will be appreciated and are within the scope of the scientific strategy of SOLEIL. A concise description of such a project should be provided in your application.

3. Qualifications & Experience

The candidate should hold a Ph.D. or equivalent degree in Physics, Physical-chemistry or a related discipline. Previous experience in a synchrotron radiation related field such as X-ray spectroscopy techniques, X-ray imaging or/and other microscopy techniques will be appreciated.

Moreover, the following aspects will be considered with the greatest attention:

- Capability in developing complex experimental equipment.
- experience in organizing the activity at shared experimental facilities.
- Competency in data processing, good time organization proficiency, effective communication skills, , ability to work both unsupervised and in a team, .

The candidate must be fluent in English (written and spoken). Since the usual language at SOLEIL is French, practice of French is also desirable.

4. General conditions

The offer concerns a Post-doctoral contract for a one year-period, renewable once.

The place of work will be at Synchrotron SOLEIL, which is located in the Paris suburbs (Saint-Aubin).

Applications should include a motivation letter and Curriculum Vitae with the addresses of three referees.

For further information, contact: Anne-Marie.Flank@synchrotron-soleil.fr

Applications should be preferably registered directly on the:

<http://candidature.synchrotron-soleil.fr/VotreCandidature/> with the reference: Post-Doc LUCIA.

Contact : Humain Ressource

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