

Post-doctoral Position – PLEIADES

Division Expériences

Position opening immediate.

SOLEIL is an optimized 3rd generation 2.75 GeV synchrotron light source of which construction was recently finalized in the South of Paris (Saint-Aubin, 91-Essonne). A permanent staff of 350 people organized as the Experimental, Source and Accelerators Divisions, Technical, Computer Support and Administration Divisions will operate the installation for users and in-house research.

PLEIADES is a soft X-ray beamline, which went into operation in 2009 and welcomes its first users from March 2010. Dedicated to the spectroscopic studies of dilute samples (atoms, molecules, ions, clusters, nanoparticles and large biological molecules), PLEIADES is a multi-topics beamline (relaxation dynamics, vector correlations, multiple photoionization, photochemistry, radiation damage...) designed to deliver to the users a highly monochromatic photon beam (energy between 7 and 1000 eV), with any type of polarization (linear, circular, elliptical). Several experimental stations are permanently installed on the beamline offering the users and the beamline scientific team a wide panel of top-level techniques. Moreover, the beamline is able to accommodate the specific experimental setups of the external users.

The large amount of spectroscopic techniques available (absorption, threshold electron, photoelectron and Auger electron spectroscopies, ion mass spectrometry, as well as fluorescence spectroscopy etc.) and the extensive use of the coincidence techniques are based on a wide range of state of the art spectrometers and detectors. The dilute samples available for study are produced either through effusive or supersonic molecular beams or by an ion source.

It has been shown for example that soft X-ray spectroscopies at very high resolution (photoelectron, Auger or electron – ion coincidence spectroscopies) in the so called sub-lifetime regime represent a very reliable alternative to the use of the recently developed fully time-resolved techniques (Ex: short pulses obtained by HHG in rare gases) for the study of the very fast dynamics of the core-excited species (fs). The novelty at PLEIADES beamline is the simultaneous use of the most advanced technologies for both beamline (Ex: the use of original VLS/VGD gratings for the PGM, leading to the possibility of using a resolving power of about 50000 near the O K-edge) and the available spectrometers (VG Scienta – R4000 electron spectrometer and efficient Auger electron –ion coincidence experiment based on the use of a “Double Toroidal” electron analyzer).

The first results obtained in 2009 show exceptional performances in terms of spectral resolution, flux and polarization state, allowing for new investigation fields to be addressed.

1. Mission

As a post-doc within the Experimental Division, you will be part of the [PLEIADES](#) beamline team under the coordination of the [beamline group leader](#). You are supposed to conduct a research program in close interaction with the scientific team of the beamline, based on the technical and instrumental facilities available at SOLEIL and in adequacy with the [scientific program of the beamline](#).

The present position is open for an initial period of 24 months. Your main scientific mission is to develop a research program dealing with the study of the decay dynamics of inner-shell excited isolated species (molecules, atomic and molecular clusters, and nanoparticles) using soft X-ray spectroscopies and this instrumentation above, with special emphasis on the photochemical reactivity of isolated nanoparticles introduced into vacuum using an aerosol generation technique.

At the same time, you will also be involved in the instrumental program, in the end of commissioning of the beamline and the user support program. You are supposed to participate in the maintenance and development programs of the beamline in order to insure its optimal operation and evolution in adequacy with the [scientific program](#) of the beamline and users needs.

For more information contact: Catalin.Miron@synchrotron-soleil.fr

2. Qualifications & Expertise

Minimum qualifications include a PhD degree in Physics or Physical Chemistry of dilute matter, Nanophysics or Nanochemistry. You must have a solid background in one or several of the following fields: gas phase physical chemistry, expertise with the molecular or cluster photoionization and photodissociation processes, charged particles spectroscopies, instrumentation, two color experiments. Knowledge of supersonic beams, vaporization of large molecular weight species (aerosols, biological molecules, nanoparticles), as well as of the coincidence based spectroscopic techniques will be appreciated.

We would like to particularly encourage applications from candidates who have strong background in the production and characterization of pure and functionalized nanoparticles, as well as in the study of their properties with possible extension of these studies towards synchrotron radiation based research.

The candidate must be fluent in English (written and spoken). Since the usual language at SOLEIL is French, practice of French is also desirable but not compulsory.

3. General conditions

The offer concerns a Post-doctoral contract for a two year-period. A wide range of valuable training programs, research and upgrading opportunities will be accessible. Moreover, the position benefits of a progressive employment conditions and a flexible work-life balance policy.

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 two referees. Applications should be preferably registered directly on the:

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

Contact : Humain Ressources Group
Cécilia Boudaud
Tél: 33 (0)1.69.35.95.08