Elettra Sincrotrone Trieste

Postdoctoral Research Associates for Experimental Linear and Non-linear X-ray spectroscopy of molecular chirality in solution within the CHIRAX ERC grant

Deadline: 5 March 2025
Ref: DB/25/5

Background

Elettra Sincrotrone Trieste is an international multidisciplinary research center operated as a user facility, featuring a 2.0/2.4 GeV, third-generation synchrotron light source (Elettra), a new free-electron laser light source (FERMI) and a variety of support laboratories. The extremely high quality of the machines and beamlines has set new performance records and has been producing results of great scientific and technological interest. In order to allow the laboratory to remain competitive in the next 20 years, an entirely new source - Elettra 2.0 - belonging to the new generation of storage rings (DLSR or Diffraction Limited Storage Ring) is being developed. The new source will exhibit a major increase in the brilliance and coherence fraction of the photon beams. The Elettra 2.0 optics is based on our enhanced symmetric six bend achromat structure (S6BA-E) with a 12-fold symmetry and an emittance of 200 pm-rad at 2.4 GeV. The new structure creates also straight sections in the arcs permitting the installation of additional insertion devices, thus increasing the number of beamlines. Existing beamlines will have to be upgraded and new beamlines developed to take full advantage of the characteristics of Elettra 2.0. The new machine is scheduled for commissioning in the second half of 2026. See http://www.elettra.eu for more information.

Beamline/Activity/Project description

The CHIRAX project (https://chirax.elettra.eu/) funded by the European Research Council aims at implementing steady-state and time-resolved X-ray spectroscopy of chiral molecules in solution using circular and helical dichroism. The steady-state part will be carried out at synchrotrons, while the time-resolved ones will exploit both synchrotrons and XFELs.

Job description

Implementation of soft X-ray absorption and chiral spectroscopies of molecules in solution using flat liquid jets. The chiral spectroscopies consist of Circular and Helical Dichroism as well as Non-linear optical/X-ray methods, while schemes to implement them in the time domain will also be developed. Analysis of results, write-up of reports and papers, presentation at conferences and workshops.

Qualifications

A PhD. in Physics, Physical Chemistry or related discipline with specific expertise in laser and/or X-ray spectroscopy is required. The candidate should have earned his/her PhD. no more than 6 years ago.

Applications will be considered also from candidates who have completed their doctoral research but for whom the defense is scheduled to take place.

The following qualifications are considered as positive assets:

- Previous participation in experimental campaigns at XFELs and/or synchrotrons
- Experience with flat liquid jets under vacuum
- Laser laboratory expertise
- Experience in data processing and/or simulations.
- Experience in the theory of X-ray spectra and/or molecular systems

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- Experience with theory of non-linear phenomena

The successful candidates should possess strong personal skills favouring collaborative research programs in a team-oriented environment.

Good time management skills and ability to prioritize are expected, together with the ability to interact with the facility staff and international users at all levels and to work as part of a multi-disciplinary team.

Good oral and written communication skills in English are essential.

General information

The appointment will be a fixed term contract with an initial duration of 12 months, renewable upon agreement by the parties.

The salary will be commensurate with previous experience and qualifications of the candidate.

Applications should include a full curriculum vitae, the names and contact information (including electronic mail) of up to three persons who have agreed to provide references.

The interviews may be held via video conferencing.

The ranking of eligible candidates resulting from this selection procedure may be used for additional appointments within the following 24 months.

Employees or former employees of Elettra Sincrotrone Trieste S.C.p.A. or temporaryand staff leasing employees or former employees with working experience atthe companywill be excluded from the present selection procedure. Employees or former employees of any Italian Public Entity who have exercised authority over Elettra Sincrotrone Trieste S.C.p.A. or have negotiated with Elettra - Sincrotrone Trieste S.C.p.A. within the last three years will also be excluded from the present selection procedure, in accordance with the provisions of article 21 of the Italian legislative decree no. 39/2013 and in conjunction with article 53 (subsection16ter) of Italian legislative decree no. 165/2001.

For further information please contact Prof.Majed Chergui: majed.chergui@elettra.eu ; majed.chergui@epfl.ch

The deadline for the submission of the application is March 5, 2025.

We thank all applicants in advance.

To apply for this position please visit the following link:
https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=4243