



Postdoctoral Research Associate at DiProl

Deadline: 31 August 2023

Ref: DB/23/17

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

DiProl is one of the five beamlines operating in the EUV/soft X-ray range at the FERMI seeded FEL. The end-station enables scattering and diffraction experiments to be performed in either transmission or reflection geometry, exploiting the high degree of transversal and longitudinal coherence, variable polarization and wavelength tunability of the FEL source. DiProl is equipped with a non-collinear split and delay line unit to carry out optically probed four-wave-mixing experiments.

Job description

The selected candidate will develop advanced EUV/soft X-ray time-resolved imaging and scattering experiments at DiProl, working together with the local team. She/He will be strongly involved in the technical upgrades of the beamline and end-station. She/he is expected to develop original research and collaborate actively with the external users and FERMI research staff. She/he may be also involved in selected research projects carried out at the other FERMI end-stations, in particular EIS-Timer/Timex and MagneDyn.

Qualifications

A Ph.D. in Physics, Chemistry, Engineering or a related discipline is required. The candidate must not have more than 6-years of total postdoctoral experience in academic institutions or private companies. Applications will be considered also from candidates who have completed a doctoral course of studies and for whom the defense has been scheduled. In any case, the Ph.D. must be awarded by the end of September 2023.

Proven experience in at least one of the following techniques is required:

- Coherent diffraction imaging or holography
- Small angle X-ray scattering and/or diffuse scattering
- Time-resolved experiments with free electron lasers or conventional laser sources

The following qualifications will be considered as additional assets:

- Proven experience in experiments at FELs or synchrotron radiation facilities
- Research experience in nonlinear optics, or transport phenomena, or magnetism dynamics, or time-resolved X-ray photon correlation spectroscopy

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- Experience in the construction/development of instrumentation used in time-resolved experiments at conventional laser source and/or in large scale facilities
- Demonstrated ability in programming and data processing

The successful candidate should possess strong personal skills favoring 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. 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 deadline for the submission of the application is August 31, 2023.

In accordance with the provisions of article 21 of the Italian legislative decree no. 39/2013 and in conjunction with article 53 (subsection 16ter) of Italian legislative decree no. 165/2001, 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 be excluded from the present selection procedure. We thank all applicants in advance.

For more information, please contact Flavio Capotondi (email: flavio.capotondi@elettra.eu).

To apply for this position please visit the following link:

<https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=3221>

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