Elettra Sincrotrone Trieste

Scientific specialist for computational imaging at Elettra

Deadline: 31 July 2022
Ref: IA/22/26

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

Euro-BioImaging (EuBi hereafter) (http://www.eurobioimaging.eu/) is a large-scale pan-European research infrastructure project included in the Roadmap of the European Strategy Forum on Research Infrastructures (ESFRI) that recently has been structured as an European Research Infrastructure Consortium (ERIC). In this framework the SYRMEP X-ray imaging beamline of Elettra has been appointed as *Node for Phase Contrast Imaging* and is required to provide access to users submitting proposals through the EuBi portal (http://www.eurobioimaging-interim.eu/).

In order to meet the requests of the EuBi user community, the set-up of the SYRMEP beamline needs to be upgraded with the acquisition of new equipment, optimization of the acquisition and reconstruction pipeline for Computed micro-Tomography (micro-CT), implementation of new protocols for dynamic studies (4DCT) and optimization of the Pore3D software for quantitative analysis.

Job description

The successful candidate will be involved in the improvement of the micro-CT data pipeline with the implementation of:

- fast online reconstruction processes (such as RECAST3D)
- procedures for offline large dataset reconstruction.

He/she will also be in charge of the optimization of the in-house developed Pore3D software through the completion of its porting to a platform based on Python and Jupyter notebooks, and with the development of its capabilities in biomedical data analysis.

In the framework of the Elettra 2.0 upgrade project, he/she will follow up the computational developments and upgrades of the beamline during its transition towards the new machine and the related set-up.

Qualifications

A Phd in Computer science, Physics or related discipline and proven programming skills with Python for scientific computing and Linux for software development are required. A minimum of 5 years of experience in the field, preferably at photon and neutron facilities, is expected.

The following technical skillswill be considered a plus:

- Experience and knowledge of synchrotron applications;

- Scientific data management including formats (i.e., NeXus, HDF5, FAIR data);
- CT basic principles and applications.

The succesful candidate should possess strong interpersonal skills to pursue collaborative research programs in a team-oriented environment and become part of existing research collaborations.

Good time management skills and ability to prioritize are expected, together with the ability to interact with project partners and work as part of a multidisciplinary team. Good oral and written communication skills in English are essential.

The appointment envisioned is a fixed term contract of 36 months of duration. The salary will be commensurate with the previous experience and qualifications of the candidate.

Applications should include a full curriculum vitae signed by the applicant, with the names and contact information (including electronic mail) of at least two professional references.

Due to the COVID-19 situation, the interviews will be performed through video conferencing.

The deadline for the submission of the application is July 31, 2022.

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, 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 Roberto Pugliese (email: roberto.pugliese@elettra.eu).

To apply for this position please visit the following link:
https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=2681