Elettra Sincrotrone Trieste

Optical Engineer/Physicist for the Optical Metrology Lab

Deadline: 10 April 2025
Ref: RA/25/12

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.

Job description

The successful candidate will join the Optical Metrology Lab and will contribute to the scientific activities of the Optics Group. In particular, he/she is expected to perform the metrological characterization of the mirrors of the Elettra/Elettra 2.0 and FERMI facilities, evaluating the figure/slope errors (long spatial wavelengths) and the Power Spectral Density (PSD) of the microroughness (short spatial wavelengths). The successful candidate will also assist the other members of the Optics Group in the development, testing, and installation of new optical systems and will be involved in the renovation of the metrology laboratory within the Elettra 2.0 project.

Qualifications

A Ph.D. or Master Degree in Physics or Engineering is required together with experience in UV or X-ray optics, in one or more of the following areas:

- UV or X-ray optical simulation codes;
- UV or X-ray transport and diagnostics;
- Surface metrology characterization of X-ray mirrors in terms of figure/slope errors (profilometry and interferometry) and microroughness with different techniques (interferometry, scattering analysis, atomic force microscopy) to obtain the PSD;
- diffractometry measurements, to obtain X-rays reflectivity, scattering properties of X-rays mirrors, characterization of crystals.

Preference will be given to candidates with documented experience in the design, production, and commissioning of x-ray optical systems at large-scale facilities for beamlines or astrophysics.

The use of optical simulation codes and the knowledge of X-ray transport and diagnostics will be considered a plus as well as the know-how of C/C++, Java and/or Python.

Good oral and written communication skills in English is required. A working knowledge of the Italian language is desirable.

Good time management skills and the ability to prioritize are expected, together with the capacity to interact with staff and to work as part of a multi-disciplinary team.

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General information

The appointment envisioned is a permanent staff position, with a 6 months trial period.

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

Applications should include full curriculum vitae and possibly contact information (including electronic mail) of at least three references.

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

The interviews may be held via video conferencing.

Permanent employees of Elettra Sincrotrone Trieste S.C.p.A. will 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.

The deadline for the submission of the application is April 10, 2025.

We thank all applicants in advance.
For more information, please contact Edoardo Busetto (email: edoardo.busetto@elettra.eu).

To apply for this position please visit the following link:
https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=4250