



Elettra Sincrotrone Trieste

Optical Engineer/Scientist for the Elettra 2.0 Beamlines

Deadline: 20 January 2023

Ref: RA/22/38

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

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. Additionally, three in-vacuum undulators and two high-field superbends are considered. The new machine is scheduled for commissioning in the second half of 2026.

Job description

The successful candidate, as part of the Optics Group, will be involved in the optimization of the optical systems of the existing beamlines and in the design and implementation of the new beamlines for the Elettra 2.0 source.

In particular, the successful candidate is expected to take part in the conceptual design and simulations of the optics of the new beamlines, work on the optomechanical design of beamline components, and contribute to the thermal and vibrational analysis of the optomechanical components in collaboration with the mechanical engineering team.

He/she will also participate in the assembling, alignment, optical characterization and commissioning of the main optical components such as mirrors, monochromators, etc.

Qualifications

A Ph.D. in Physics and/or a related discipline is required together with working experience in UV or X-ray Optics.

Previous experience in the following fields will be positively evaluated:

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1. use of optical simulation codes;
2. X-ray transport and diagnostics.

Preference will be given to candidate with documented experience in the design, realization, and commissioning of optical

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systems for beamlines at large-scale facilities.

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.

Good oral and written communication skills in English and the ability to work productively in a team are essential.

The appointment envisioned is a fixed term contract with an initial duration of 24 months.

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

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

The deadline for the submission of the application is January 20, 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 Edoardo Busetto (email: edoardo.busetto@elettra.eu) or Lorenzo Raimondi (email: lorenzo.raimondi@elettra.eu).

To apply for this position please visit the following link:

<https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=2881>

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