Elettra Sincrotrone Trieste

Accelerator Physicist

Deadline: 30 October 2023
Ref: CA/23/29

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.

FERMI is the seeded Free Electron Laser (FEL) user facility operating in the VUV to EUV with the FEL-1 laser and in the soft X-rays spectral range with the FEL-2 laser. The radiation produced by seeded FELs is characterized by wavelength stability, low temporal jitter and longitudinal coherence in the range 100-4 nm. The upgrade plans for the future 3-5 years include an upgrade of the linac and the conversion of FEL-1 from a high gain harmonic generation (HGHG) operating mode to an echo enabled harmonic generation (EEHG) operating mode. The implementation and commissioning of Elettra 2.0 will have the highest priority through 2026. The Elettra upgrade will be followed, in a longer-term perspective, by the FERMI FEL-2 upgrade.

Job description

The successful candidate will join the staff of the Accelerator Group inrunning and further developing the accelerator-based light sources. She/hewill contribute to the management, operation, optimization, maintenance and upgrade of accelerator systems. She/he will be primarily involved in the Elettra upgrade program, with particular attention to the electron beam dynamics and in view of the high expectations of the user community. She/he is expected to participate in the design, construction and commissioning of Elettra 2.0, develop her/his own research program, and promote the capabilities and scientific accomplishments of the light source.

Qualifications

Master degree in Physics or Engineering followed by with at least 7 years of proven experience in accelerator physics, or a Ph.D. in Physics or Engineering together with at least 3 years of proven experience in accelerator physics is required

Previous work-experience at a synchrotron radiation facility will be considered a plus, as will be hands-on experience in developing high level software and managing accelerator operations from a control room.

The following technical skills would be considered as additional assets:

- coding capabilities (e.g., using Python, Matlab, Elegant, AT, MadX) for accelerator modelling and control;

- knowledge and modelling of linear and nonlinear particle dynamics in the presence of insertion devices, and of time-dependent e.m. fields for particle beam injection and manipulation.

The successful 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.

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Good oral and written communication skills in English are essential. A working knowledge of Italian would be desirable.

General information

The appointment envisioned is a permanent staff position.

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

Applications should include full curriculum vitae, contact information (including electronic mail) of at least two references.

The deadline for the submission of the application is October 30, 2023.

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 Simone Di Mitri (email: simone.dimitri@elettra.eu).

To apply for this position please visit the following link:
https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=3402