Elettra Sincrotrone Trieste

Accelerator Physicist for the Elettra 2.0 Project (collective effects)

Deadline: 3 December 2020
Ref: CA/20/41

Company description

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. 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

Implementation of DLSR presents a series of critical accelerator physics and technological issues as a result of the reduced dynamic acceptance due to enhanced nonlinearities. DLSR are extremely sensitive to all sorts of imperfections and require extensive experimental and numerical studies. Another aspect is the strong magnetic field resulting and the small vacuum chamber cross section, which have implications on collective effects Furthermore, due to the lack of space, innovative engineering solutions are needed. The successful candidate will be a member of the machine physics team and is expected to give important contributions to all aspects of accelerator physics R&D.

He/she will be involved in the studies of collective effects in the new machine.

He/she will contribute to the studies of booster modifications and injection strategies.

To evaluate their implementation, he/she will also participate in the related experimental activity on the current Elettra accelerator complex. He/she is expected to collaborate with the radiation protection group to identify any point of high radiation loss in the lattice and will be also be involved in top-up simulations.

Qualifications

A Master degree in Physics or Engineering and working experience with storage rings is required. A doctoral degree would be considered a plus. Knowledge of simulation programs such as AT, GdfidL or similar is expected. Programming skills (Matlab in particular) would be considered an advantage.

Good oral and written communication skills in English are essential. A working knowledge of the Italian language is desirable, but is not required.

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

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Applications should include full curriculum vitae and the names and contact information (including e-mail address) of two professional references.

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

The deadline for the submission of the application is December 3, 2020.

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 Emanuel Karantzoulis (email: emanuel.karantzoulis@elettra.eu).

To apply for this position please visit the following link:
https://www.elettra.trieste.it/it/about/careers/working-withus.html?ref=CA%2F20%2F41