



Elettra Sincrotrone Trieste

Accelerator Physicist / Engineer for the Elettra 2.0 Project (superconductivity and cryogenics)

Deadline: 3 December 2020

Ref: CA/20/42

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. 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 and engineering R&D.

He/she will be in charge of coordinating the work devoted to the implementation of superbends in Elettra 2.0, from the study of the possible design solutions to the technical and management aspects of their construction, installation and integration in the new machine. This work involves interacting with partner institutes and companies. Responsibilities will also include supporting the magnet and engineering team of the project. e/she will be involved in the R&D on other superconducting devices being considered. To evaluate their implementation, he/she will also participate in the related experimental activity on the current Elettra accelerator complex.

Qualifications

A Master degree in Physics or Engineering is required. A doctoral degree would be considered a plus. Some knowledge of applied superconductivity and/or cryogenic technologies is highly desirable.

Experience in the following areas would be considered an advantage:

- working experience with storage rings;
- superconducting magnet design and measurements;
- normal conducting magnets;

Elettra - Sincrotrone Trieste S.C.p.A.

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Società di interesse nazionale
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- programming skills (in particular Matlab);
- CAD software;
- accelerator design and related technologies.

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

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

Due to the situation related to 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 (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 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?id=1622>

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