Elettra Sincrotrone Trieste

Accelerator Physicist

Deadline: 5 December 2026
Ref: CA/26/37

Background

Elettra Sincrotrone Trieste is an international multidisciplinary research center offering international users access to synchrotron and free-electron laser radiation for the characterization and processing of matter. The extremely high quality of the light sources 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 synchrotron radiation source - Elettra 2.0 - belonging to the new generation of storage rings (DLSR or Diffraction Limited Storage Ring) is being installed and will join the already operating free-electron source FERMI in the next months. 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 are being upgraded and new beamlines constructed to take full advantage of the characteristics of Elettra 2.0. See http://www.elettra.eu for more information.

Beamline/Activity/Project description

Implementation of DLSR presents a series of critical accelerator physics and technology 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 small vacuum chamber cross section and the strong magnetic fields as compared with third generation storage rings, which have implications on collective effects. Furthermore, due to the lack of space, innovative engineering solutions are needed.

Job description

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 technology, with an accent on beam collective effects in accelerator-based advanced light sources.

In particular, the successful candidate will :

- contribute tocommissioning, and user operation phase of Elettra 2.0, including studies of the booster ring modifications and commissioning, as well as in beam injection strategies;
- be involved in studies of collective effects, including the impact of the third harmonic cavity on the beam dynamics and other related issues like the scheme for short X-ray pulse production, being it one of the next important developments of the Elettra 2.0 project;
- contribute to FERMI FEL related activities, both in design and operation stage, when requested.

Qualifications

Essential requirements:

- Master degree in Physics or Engineering;
- more than 3-year long and continuative working experience with storage rings in the last five years;
- expert knowledge of simulation codes such as AT, Elegant, CST, HFSS.

Elettra Sincrotrone Trieste

Any of the following will be considered a plus:

- doctoral degree in Physics or Engineering;
- participation to international schools on particle accelerators;
- programming skills, for example but not limited to, Matlab and Python;
- publications in peer-reviewed journals on accelerator physics and technology;
- documented knowledge of modelling of machine impedance and related beam dynamics in storage ring light sources.

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

The successful candidate should possess strong interpersonal skills favoring collaborative research programs in a team-oriented environment. Good time management skills and ability to prioritize are expected, together with the ability to interact with the facility staff and international users at all levels, and to work as part of a multi-disciplinary team.

General information

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

The employment grade is Level B1 of the National Metalworker Collective Labour Agreement (C.C.N.L.), with a gross annual salary ranging from € 30.814,29 to € 35.500,00 depending on previous experience and qualifications of the candidate.

Applications should include the candidate's full curriculum vitae, the names and contact information (including electronic mail) of up to two persons who have agreed to provide references.

The interviews may be held via video conferencing.

The ranking of suitable candidates resulting from this selection process may be used within the following 24 months.

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 publication of this call does not commit Elettra Sincrotrone Trieste S.C.p.A. to implement the procedure announced. Elettra Sincrotrone Trieste S.C.p.A. reserves the right to suspend/postpone/cancel this selection procedure or to launch a new call at its sole discretion, without the candidate being entitled to rise any claim.
In accordance with current applicable legislation, the selection procedure and any subsequent recruitment will be conducted in line with the principles of equal opportunities and non-discrimination.
Candidates will not be required to disclose information regarding their current or previous remuneration, in compliance with the provisions of Legislative Decree 96/2026.
The deadline for the submission of the application is December 5, 2026.

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=4315