



Elettra Sincrotrone Trieste

# Accelerator Physicist for the Elettra 2.0 Project

Deadline: 6 May 2021

Ref: CA/21/9

## 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 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 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.

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. In particular, he/she will contribute to the studies of booster modifications and injection strategies. He/she will be involved in the studies of collective effects in the new machine, of the impact of the third harmonic cavity and other related issues. 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 and working experience with storage rings is required. A doctoral degree would be considered a plus. Knowledge of simulation programs such as AT, Elegant 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.

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 May 6, 2021.

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

S.S. 14 Km 163,5 in Area Science Park  
34149 Basovizza, Trieste, Italy  
T. +39 040 37581  
F. +39 040 938 0903

P.IVA e C.F. IT00697920320  
Cap. Soc. € 47.632.663,00 i.v.  
PEC: [sincrotrone.trieste.elettra@legalmail.it](mailto:sincrotrone.trieste.elettra@legalmail.it)  
[www.elettra.eu](http://www.elettra.eu)

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We thank all applicants in advance.

For more information, please contact Emanuel Karantzoulis (email: [emanuel.karantzoulis@elettra.eu](mailto: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=1821>

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