Elettra Sincrotrone Trieste

Junior Mechanical Engineer or Physicist for Vacuum Engineering - Elettra 2.0 Project

Deadline: 23 September 2024
Ref: RA/24/39

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.

Beamline/Activity/Project description

The vacuum engineering team is mainly dedicated to the development and maintenance of the large vacuum systems necessary for the Elettra and FERMI machines to function. They also advise and support scientists and technicians in their day-to-day beamline and laboratory vacuum needs.

Job description

The successful candidate will be part of the vacuum engineering team involved in designing and testing vacuum systems and components dedicated mainly but not limited to the front-ends of the Elettra 2.0 storage ring and beamlines. The successful candidate may also be involved, with the other members of the team, in the maintenance activities of the vacuum systems and components of the current machine to allow other members of the team to increase their involvement in the development of the new machine.

The candidate will:

- contribute to the definition of all the vacuum requirements (e.g., material properties, cleaning procedures, instrumentation) for the development of the vacuum systems and special vacuum components of the machine, front-ends and beamlines;
- participate in the design of the vacuum system by evaluating its performance through simulations;
- define the vacuum interlock system rules and write the related documentation;
- discuss and propose the mechanical integration of vacuum components, vacuum instrumentation and ancillary systems in the general layout of Elettra 2.0;
- produce the technical documentation required for procurement and follow the manufacturing and construction stages of all vacuum components;
- perform vacuum test on prototypes and final components at the vacuum laboratory, analysing data and issuing test reports;
- review technical reports issued by contractors and participate in the factory acceptance tests;

- collaborate to on-site installations and commissioning of machine, front-ends and beamlines.

Qualifications

A Master Degree in Engineering or Physics is required.

Good oral and written communication skills in Italian and English as well as good knowledge of Microsoft Office or similar software suites are essential.

It is highly desirable but not essential that the candidate has experience in:

- writing and reviewing technical documentation;
- performing data analysis to produce test reports;
- assembling scientific apparatus or installing large mechanical systems;
- 2D and 3D mechanical design using CAD programs (Autocad, Catia or similar);
- mechanical or thermal simulations (Ansys or similar);
- vacuum science and technology;
- vacuum simulations (Molflow+, Synrad or similar);
- other R&D private or public laboratories.

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

General information

The appointment will be a fixed-term employment contract of an initial duration of 12 months, extendable by agreement of both parties, in accordance with the legal provisions in force currently, up to a maximum of 36 months.

Applications should include full curriculum vitae signed by the applicant (preferably using the European Curriculum Vitae Format in PDF), with the names and contact information (including electronic mail) of at least three professional references.

Depending on the evolution of the COVID-19 pandemic, the interviews may be held via video conferencing.

The deadline for the submission of the application is September 23, 2024.

Permanent employees of Elettra Sincrotrone Trieste S.C.p.A. and 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, 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.We thank all applicants in advance.
For more information, please contact Luca Rumiz (email: luca.rumiz@elettra.eu).

To apply for this position please visit the following link:
https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=4212