



Elettra Sincrotrone Trieste

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

Deadline: 28 February 2023

Ref: RA/23/3

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 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 vacuum requirements (e.g., material properties, cleaning procedures, instrumentation) for the development of the vacuum systems and special vacuum components of the front-ends and beamlines;
- contribute to the design of the vacuum system and perform vacuum simulations to assess vacuum system performance;
- 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 in on-site installations and commissioning of front-ends and beamlines.

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. € 49.969.980,45 i.v.
PEC: sincrotrone.trieste.elettra@legalmail.it
www.elettra.eu

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Qualifications

A Master Degree in Mechanical Engineering or Physics is required.

Experience in writing and reviewing technical documentation and performing data analysis to produce test reports is expected. Good knowledge of Microsoft Office or similar software suites is required. Good knowledge of some 2D and/or 3D CAD programs (AutoCAD, KATIA, SolidWorks...) is desirable, as would be experience in vacuum science and technology, and knowledge of Molflow+ and Synrad programs or other vacuum simulation software.

Manual skills and experience in the assembly of scientific apparatus or in the installation of mechanical systems or in simple electrical installations, would be considered an important asset. Previous experience in other R&D private or public laboratories would be considered a plus.

Good oral and written communication skills in English are essential. Good oral and written communication skills in Italian are desirable.

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.

The deadline for the submission of the application is February 28, 2023.

The appointment envisioned is a fixed term contract with an initial duration of 12 months. The salary will be commensurate with previous experience and qualifications of the candidate.

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.

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 Luca Rumiz (email: luca.rumiz@elettra.eu) or Edoardo Busetto (email: edoardo.busetto@elettra.eu).

To apply for this position please visit the following link:

<https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=2941>

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