



Elettra Sincrotrone Trieste

TwinMic Research Associate at Elettra

Deadline: 16 January 2025

Ref: DA/24/61

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

Presently, the TwinMic beamline provides photons in the 400-2200 eV energy range and the its end-station can be used to perform high-resolution X-ray microscopy (STXM, TXM and ptychography) coupled with low-energy X-ray Fluorescence (LEXRF) and micro-XANES spectroscopies. At TwinMic characterization of various materials at the sub-micron scale can be performed, covering research fields such as novel materials, nanotoxicology, food science, neuroscience and clinical medicine.

Within the Elettra 2.0 program, important upgrades of TwinMic beamline are foreseen, which concern both the beamline photon energy range as well as the experimental station in order to offer additional imaging schemes and increase the lateral and spectral resolution of the existing ones.

See <http://www.elettra.eu/elettra-beamlines/twinmic.html> for more information.

Job description

The successful candidate will be involved in the operation, maintenance and upgrade of the TwinMic beamline and experimental station in order to meet the requirements of a broad user community. He/she will collaborate with the TwinMic beamline staff in the ongoing in-house scientific projects and technological developments, including the introduction of new imaging methods, such as ptychography, and the design of a new photon transfer system and a new end-station in view of Elettra 2.0. In addition, she/he will also contribute to providing high-quality support to external users, thus gaining opportunities for collaborative work at the frontiers of the field before the dark period starting in July 2025, when the removal of Elettra and the installation of Elettra 2.0 will take place. User operations of the new Elettra 2.0 facility is expected to start in January 2027.

Qualifications

The following qualifications are expected:

- Degree in Engineering, Physics, Materials Science or related disciplines.
- Proven knowledge of complex instrumentation design and development (i.e., synchrotron instrumentation, beamlines, experimental stations, detectors etc)
- Proven experience in at least one of the following experimental techniques: (i) X-ray microscopy, (ii) Ptychography, (iii) X-ray Fluorescence.

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

Iscritta al Registro delle Imprese di Trieste
Società di interesse nazionale
ai sensi dell'art. 10, comma 4,
L. 19 ottobre 1999 n. 370





Elettra Sincrotrone Trieste

- Good oral and written communication skills in English.

The following qualifications will be considered as additional assets:

- PhD in Engineering, Physics, Materials Science or related disciplines
- Research experience in public organisations or private companies with a job description relevant to the present position.
- Experience with X-ray absorption spectroscopy
- Experience with procedures and methods for X-ray Fluorescence quantitative analysis
- Experience with Coherent Diffractive imaging and Phase Retrieval
- Hands-on experience with vacuum systems or cryo-sample environment
- Hands-on experience with soft X-ray optics and detector systems
- Good programming skills in Python for data analysis, use of Linux and CAD design
- Working knowledge of Italian

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

General information

The appointment envisioned is a fixed-term contract of an initial 12 months duration extendable up to 36 months, upon agreement between the parties, as foreseen by the beamline work program and in accordance with the National Metalworkers' Union Collective Labour Agreement and the Company Union Agreement dated 28th March 2024, ex. art. 8 of the Decree Law 138/2011.

The salary will be commensurate with previous experience and qualifications of the candidate.

Applications should include a full curriculum vitae (CV). The CV must include a complete list of the candidate's publications (scientific papers, book chapters, patents, technical reports, ...) and any relevant information for the position, highlighting the pertinence to the present position. In addition, the names and contact information (including electronic mail) of at least two references shall be included.

The interviews may be held via video conferencing.

The deadline for the submission of the application is January 16, 2025.

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 (subsection 16ter) of Italian legislative decree no. 165/2001. We thank all applicants in advance.

For more information, please contact Alessandra Gianoncelli (email: alessandra.gianoncelli@elettra.eu).

To apply for this position please visit the following link:

<https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=4234>

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

Iscritta al Registro delle Imprese di Trieste
Società di interesse nazionale
ai sensi dell'art. 10, comma 4,
L. 19 ottobre 1999 n. 370

