Elettra Sincrotrone Trieste

Junior Scientist for the Spectromicroscopy beamline

Deadline: 6 September 2026
Ref: DB/26/29

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

The Spectromicroscopy beamline operates in the EUV-XUV spectral range and is served by an F8 undulator source shared with the BaDElPh beamline, generating an intense photon beam with variable linear polarization. Beam focusing on the sample is provided by a set of Schwarzschild objectives, delivering fixed photon energies of 27, 74, and 94 eV.

The beamline has been extensively upgraded within the framework of the Elettra 2.0 project. The end station now comprises an advanced angle-resolved photoemission microscope equipped with an MB Scientific AB Ultra High Resolution Photoelectron Analyzer, a wide-angle acceptance lens, and an MBS 90-degree deflector with an MBS spin-manipulator. A Focus Ferrum Spin detector is available for spin-resolved measurements using the VLEED approach. The setup includes a SmarAct GmbH X, Y, Z, R, and a sample manipulator, enabling 1 nm positioning resolution, as well as a LHe flow cryostat capable of reaching temperatures as low as 20 K.

The beamline scientific case focuses on nano-ARPES studies of the electronic and spin-resolved electronic structure of quantum materials and engineered layered structures, exploiting a photon-energy range complementary to laser ARPES and other synchrotron nano-ARPES beamlines, and addressing forefront research in twistronics, valleytronics, and spintronics.

See http://www.elettra.eu/elettra-beamlines/Spectromicroscopy.html for more information.

Job description

The successful candidate will be engaged in the commissioning and operation of the Spectromicroscopy beamline at Elettra 2.0. Initially, he/she will oversee all aspects of testing and commissioning of the new experimental station. This responsibility includes evaluating and optimizing the overall performance of the experimental apparatus.

Subsequently, he/she will be expected to play an active role in the day-to-day operation and maintenance of the beamline. The role involves supporting proposal preparation and submission, assisting users with experiment execution and data analysis, and consistently providing high-quality scientific and technical support. A key responsibility will be fostering collaborative research initiatives with users and, in particular, broadening and strengthening the user community through active outreach.

In addition, he/she is expected to develop an independent line of research that exploits the unique capabilities of the Spectromicroscopy beamline and, where appropriate, further expands them. This will involve submitting proposals to European and Italian funding agencies, actively participating in collaborative research projects, and leveraging an extensive scientific network to maximize the scientific impact of the beamline and contribute to the planning of future upgrades beyond Elettra 2.0.

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Qualifications

Mandatory requirements

- Ph.D. in Physics or related discipline obtained no more than 10 years prior to the application deadline;
- more than 3 years postdoctoral experience, in academic institutions or private companies, with a track record commensurate with career advancement;
- a solid background in surface science and solid state physics;
- a proven track record in the growth and characterization of two-dimensional materials, with particular emphasis on their interfacial properties;
- demonstrated experience with angle-resolved photoelectron spectroscopy (ARPES) for investigating the electronic structure of surfaces and interfaces;
- good oral and written communication skills in English.

Additional Skills

Prior experience in user support at synchrotron radiation or FEL facilities will be considered an advantage, as will be the expertise in the following areas:

- proven experience in surface characterization using scanning probe and electron diffraction techniques for studying the adsorption of atoms, molecules and clusters on surfaces;
- commissioning and/or development of scientific instrumentation.
- programming skills in data acquisition with LabVIEW;
- data analysis skills (Python, Igor Pro, etc.) or simulation software.

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 envisioned appointment is a fixed term contract of an initial duration of 12 months, renewable up to a maximum of 36 months, governed by the National Metalworker Collective Labour Agreement (C.C.N.L.) and by the Company Labour Agreements (agreements available on www.elettra.eu section "amministrazione trasparente"). A trial period of 30 effective working days is foreseen.

The employment grade is Level B2 of the National Metalworker Collective Labour Agreement (C.C.N.L.), with a gross annual salary ranging from € 33.058,74 to € 36.000,00 depending on previous experience and qualifications of the candidate.

Applications must include a full curriculum vitae, the names and contact information (including electronic mail) of up to two individuals who have agreed to provide references. A motivation letter is desirable.

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

The interviews may be held via video conferencing.

Employees or former employees of Elettra Sincrotrone Trieste S.C.p.A., as well as current or former personnel provided by temporary work agencies 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

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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 (subsection 16ter) 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 September 6, 2026.

We thank all applicants in advance.
For more information, please contact Alexey Barinov (email: alexey.barinov@elettra.eu).

To apply for this position please visit the following link:
https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=4307