Elettra Sincrotrone Trieste

Scientist at the Nanospectroscopy Beamline

Deadline: 3 October 2025
Ref: DB/25/29

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 second half of 2026. 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. Seehttp://www.elettra.eufor more information.

Beamline/Activity/Project description

The Nanospectroscopy beamline, delivering 25-1000 eV linearly and elliptically polarised photons, operates a dedicated photoemission electron microscopy end-station equipped with a spectroscopic photoemission and low-energy electron microscope (SPELEEM). The SPELEEM offers a wide range of complementary methods, providing structural, chemical, and magnetic sensitivity with a lateral resolution approaching few tens of nanometres. The end-station has recently received a new electron energy analyser and other significant upgrades to meet the most demanding experimental requirements. The beamline transport optics are also being renovated as part of the Elettra 2.0 upgrade.

Research at the beamline focuses on the electronic and magnetic properties of micro- and nanostructured materials, spanning surface science and surface chemistry, with particular emphasis on molecular interfaces and magnetism. Experiments exploit a combination of techniques based on photoemission spectroscopy, absorption spectroscopy, and electron microscopy. Comprehensive information on these activities is available at: http://www.elettra.eu/elettra-beamlines/nanospectroscopy.html

Job description

The successful candidate, as part of the Nanospectroscopy beamline staff, will actively contribute to the maintenance and efficient operation of the beamline and experimental station. Initially, she/he will play a key role in commissioning the beamline for Elettra 2.0 initial user operation.

As beamline scientist, she/he will be expected to propose and develop an independent research programme that exploits and expands the beamline's capabilities. In this context, she/he may submit proposals to relevant funding agencies and participate actively in collaborative projects, leveraging a broad professional network to ensure the scientific success of the beamline and to plan future upgrades beyond Elettra 2.0.

A key responsibility will be to help expanding and strengthening the user community, in part through active scouting, promoting the realization of users' research, assisting in proposal submission, experiment execution, and data analysis, while providing consistently high-quality support.

The experimental work will focus on investigating the electronic, magnetic, and chemical properties of a wide range of complex materials, particularly magnetic thin films, 2D systems, and molecular interfaces, addressing key topics in surface science, surface chemistry, and nanoscience. Materials will be grown in situ by PVD/CVD methods and subsequently characterized using X-ray photoemission electron spectromicroscopy, low-energy electron microscopy and diffraction.

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Qualifications

A Ph.D. in Physics, Chemistry, or a related discipline is required. The candidate must have no more than six years of total postdoctoral experience, in either academic institutions or private companies.

Proven experience in the following techniques is required, supported by a publication record commensurate with career advancement:

- X-ray absorption spectroscopy
- Photoemission electron microscopy and/or low-energy electron microscopy
- Spin- and/or angle-resolved photoemission spectroscopy

A strong track record in at least one of the following research fields is required:

- Chemical, electronic and magnetic properties of two-dimensional materials
- Chemical, electronic and magnetic properties of molecular interfaces

The following qualifications will be considered advantageous:

- Previous experience at synchrotron/FEL facilities, including assistance to users.
- Demonstrated ability in software development (e.g., instrument interfacing)

General information

The appointment envisioned is a permanent position. The salary will be commensurate with previous experience and qualifications of the candidate.

Applications should include the candidate's full curriculum vitae, the names and contact information (including electronic mail) of up to two persons who have agreed to provide references.

The interviews may be held via video conferencing.

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

Permanent employees of Elettra Sincrotrone Trieste S.C.p.A. 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 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 (subsection16ter) of Italian legislative decree

The deadline for the submission of the application is October 3, 2025.

We thank all applicants in advance.
For more information, please contact Andrea Locatelli (email: andrea.locatelli@elettra.eu) or Tevfik Onur Mentes (email: tevfik.mentes@elettra.eu).

To apply for this position please visit the following link:
https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=4267