Elettra Sincrotrone Trieste

Postdoc for the ESCA Microscopy beamline

Deadline: 28 October 2026
Ref: DB/26/32

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 ESCA Microscopy beamline provides linearly polarized photons in the energy range of 400-1200 eV. The beamline hosts a zone-plate-based Scanning Photoemission Microscope (SPEM), primarily used to perform spatially resolved photoemission spectroscopy and imaging.

The research projects carried out at ESCA Microscopy include the study of the chemical, electronic, and physical properties of materials at the submicron scale in different fields, including materials science and solid-state physics. Recently, a dedicated cell for near-ambient-pressure, spatially resolved XPS experiments has been developed and tested. This cell extends the capabilities of the SPEM, offering a unique opportunity among synchrotron facilities worldwide.

With minimal upgrades, the beamline is expected to resume operations in the first semester of 2027, following the completion of the new Elettra 2.0 storage ring. A major refurbishment of the experimental station is planned for 2027.

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

Job description

The successful candidate will be involved in the study of the chemical and electronic properties of materials and nanostructures using spatially resolved photoemission techniques at the ESCA Microscopy beamline. Examples of materials include functionalized 2D materials, solid oxide fuel cells, semiconducting nanowires, transparent conductive oxides, and real and model catalysts interacting with gases and/or metallic adlayers.

The experiments, led by users and collaborators or carried out as part of in-house research activities, will be performed under conventional UHV and HV conditions, as well as in near-ambient-pressure environments, including operando characterization of complex devices (e.g., SOFC prototypes). The candidate is expected to develop original research activities and to actively collaborate with external users.

As part of the major microscope refurbishment planned for 2027,the successful candidate will contribute to the design, manufacturing, and commissioning of the new end station, in addition to carrying out routine developments of the photon transport equipment and end stations required to accomplish the experimental program.

Qualifications

A Ph.D. in Physics, Chemistry or a related discipline is required. The candidate must not have more than 6-years of total

postdoctoral experience in academic institutions or research laboratories. Applications will be considered also from candidates who have completed a doctoral course of studies and for whom the defense has been scheduled. In any case, the Ph.D. must be awarded by the end of December 2026.

A solid background in X-ray photoelectron spectroscopy (XPS) and/or photoemission microscopy supported by a publication record commensurate with career advancement, is requested.

Experience in the construction of scientific equipment relevant to synchrotron beamlines will be highly considered.

Any of the following qualifications will be considered as an additional asset (please indicate relevant publications or thesis):

- surface science methods for surface analysis and sample surface preparation, film growth.
- programming skills for data acquisition and analysis;
- near ambient pressure XPS, characterization of solid state materials for electrochemical applications (e.g., solid oxide fuel cell (SOFC), batteries).

The successful candidate should possess strong interpersonal skills favoring collaborative research programs in a team-oriented environment.

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.

Good oral and written communication skills in English are essential.

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 B1 of the National Metalworker Collective Labour Agreement (C.C.N.L.), with a gross annual salary ranging from € 30.814,29 to € 32.500,00 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 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

Elettra Sincrotrone Trieste

with the provisions of Legislative Decree 96/2026.
The deadline for the submission of the application is October 28, 2026.

We thank all applicants in advance.
For more information, please contact Luca Gregoratti (email: luca.gregoratti@elettra.eu).

To apply for this position please visit the following link:
https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=4310