Elettra Sincrotrone Trieste

Scientist for the APE-HE Beamline at Elettra 2.0

Deadline: 20 November 2026
Ref: DB/26/38

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

APE is a state-of-the-art surface science laboratory serving as a support facility for advanced spectroscopic investigations. It comprises two distinct beamlines, *Advanced Photoemission Experiments in the Low-Energy range* (APE-LE) and *Advanced Photoemission Experiments in the High-Energy range* (APE-HE), both using polarized synchrotron radiation in the ultraviolet and soft X-ray range to study solid surfaces and nanostructured matter.

The high-energy beamline provides polarized radiation for X-ray absorption spectroscopy (XAS), XMCD/LD, NEXAFS, X-ray photoelectron spectroscopy (XPS), with a particular focus on investigating surface reactivity and the catalytic properties of materials. It features end-stations for surface-sensitive experiments under ultra-high vacuum (UHV), as well as a dedicated set-up for *operando* spectroscopy under near-ambient pressure conditions.

APE-HE is among the first beamlines scheduled to become operational with the new Elettra 2.0 storage ring. The beamline optics have been upgraded and will be ready at start-up. A further upgrade is planned, involving the installation of a new undulator, currently being procured.

APE-HE provides services for the Elettra users and is part of the Nano Foundry and Fine Analysis (NFFA) facility offering integrated access services for materials growth and processing, characterization, numerical simulations and synchrotron radiation spectroscopic methods.

Job description

The successful candidate will be involved in the operation of the APE-HE beamline, acting as Local Contact for external users, and will be responsible for:

- developing an independent research programme based on soft x-ray Absorption Spectroscopy, including experiments at near-ambient pressure conditions and at cryogenic temperatures (liquid nitrogen);

- commissioning and further developing the APE-HE *operando* end-station, including the integration of complementary techniques (e.g., IR spectroscopy) into a multi-technique setup;

- actively contributing to instrumental upgrades aimed at adapting APE-HE to the new operating conditions (thermal load, photon flux, beam focalization, *etc* .) associated with the Elettra2.0 storage ring;

Furthermore, the selected candidate is expected to participate in research projects of the NFFA group, focusing in particular on energy materials and metal-organic frameworks for gas detection and absorption. These activities will involve the combined use of other NFFA beamlines and experimental setups, as well as applications for beamtime a other

international facilities.

Qualifications

A Ph.D. in Physics, Chemistry, Materials Science or related disciplines is required. 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.

Proven experience in at least one of the following techniques, supported by a publication record commensurate with career stage, is required:

- Synchrotron-based X-ray Photoelectron Spectroscopy (XPS);
- Soft X-ray Absorption spectroscopy (XAS).

Preference will be given to candidates who have used these techniques at synchrotrons under conditions ranging from UHV to ambient pressure and above, and have performed *operando* experiments and are familiar with near-ambient-conditions soft x-ray spectroscopies.

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

- At least 5 years of experience in nanoscience/nanotechnology after the PhD, with research conducted in international research centers and in research infrastructures hosting multidisciplinary laboratories and electron accelerator sources.
- Prior experience in user support at synchrotron radiation sources, FELs or other research infrastructures hosting multidisciplinary laboratories, particularly in the role of local contact.
- Experience in materials characterization with laboratory techniques e.g., LEED, RHEED, XRD, SEM, etc.
- Experience in IR spectroscopy.
- Demonstrated ability in data processing, in particular for XAS and XPS data analysis.
- Experience in characterization of catalyst activity on surfaces and nanostructures.

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, 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 24 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 € 35.300,00 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.

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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 with the provisions of Legislative Decree 96/2026.
The deadline for the submission of the application is November 20, 2026.

For more information, please contact Giorgio Rossi (email:giorgio.rossi2@unimi.it) and Giancarlo Panaccione (email giancarlo.panaccione@elettra.eu)

We thank all applicants in advance.

To apply for this position please visit the following link:
https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=4316