



Elettra Sincrotrone Trieste

Junior Researcher for the regional project i-CAMPUS-H2 Operando (LR 13/2023 - 42037/25 GRFVG, CUP: D93C25001390001)

Deadline: 31 August 2026

Ref: DB/26/24

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 "i-CAMPUS-H2-Operando" project, funded by the Friuli Venezia Giulia Region under call LR 13/2023 - 42037/25 GRFVG (26/09/2025), CUP: D93C25001390001, aims to support the development of the i-CAMPUS-H2 research infrastructure at the Basovizza campus, dedicated to applied research on green hydrogen production, transport and storage. To this end, a new experimental station for Near Ambient Pressure X-ray Photoelectron Spectroscopy (NAP-XPS) is being developed at the SuperESCA beamline. The NAP-XPS apparatus will include a manipulator with a NAP measurement cell, a hemispherical electron analyzer, and a new large-area Delay Line Detector (DLD) developed by Elettra Sincrotrone Trieste. Thanks to its capability for extremely rapid data acquisition, it will enable real-time monitoring of chemical reactions on surfaces under conditions closer to industrial environments than previously possible. Designed to meet the needs of applied research, the NAP-XPS station will be fully aligned with the objectives of i-CAMPUS-H2 and with the provisions of LR 13/2023, Article 7.

Job description

The selected candidate will play a key role in the design, construction, commissioning, and operation of the new NAP-XPS experimental station at the SuperESCA beamline of Elettra 2.0, working in close coordination with both internal staff and external users. She/he will participate actively in the testing, development and maintenance of the experimental station.

Subsequently, she/he will be entrusted with conducting scientific research, including performing the first pilot experiments with the new apparatus. These experiments will explore the potential use as catalysts for water electrolysis of new compounds, based on two-dimensional or porous materials. Additionally, hydrogen-induced transformations in selected materials will also be investigated, thus providing useful insights for improving techniques for hydrogen storage, containment, and transport.

Finally, the selected candidate will contribute to both industrial and academic research within the i-CAMPUS-H2 infrastructure, including proposals awarded through specific open calls and confidential experimental activities requested by industrial users through the Elettra Industrial Liaison Office (ILO). The role also includes developing dedicated experimental setups and conducting experiments at SuperESCA and, where appropriate, other Elettra beamlines.

Qualifications

A Ph.D. in physics, chemistry or related discipline is required. The candidate will have less than 10-years of total

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UNI CEI EN ISO 50001:2018

postdoctoral experience in academic institutions or private companies. 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 September 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 with expertise in the *operando* experimental approach, or who have previously developed or worked with a near ambient pressure experimental set-up.

Any of the following will be considered as additional assets:

- a solid track record in the key fields of surface chemistry, electrochemistry and catalysis (please indicate relevant publications or thesis);
- experience with ultra-high-vacuum methods for surface analysis, sample surface preparation, and the growth of thin films and nanostructures;
- experience in the construction, commissioning and operation of scientific instruments, e.g., parts of beamlines or beamline end-stations;
- demonstrated ability in programming, particularly in LabView (instrument interfacing);
- demonstrated ability in data processing (Igor Pro) and analysis.

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.

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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 August 31, 2026.

We thank all applicants in advance.

For more information, please contact Silvano Lizzit (email: silvano.lizzit@elettra.eu) or Marco Bianchi (email: marco.bianchi@elettra.eu).

To apply for this position please visit the following link:

<https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=4301>



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