

Postdoctoral Research Associate for X-ray absorption spectroscopy beamlines at Elettra 2.0

Deadline: 6 September 2026

Ref: DA/26/28

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 XAFS beamline at Elettra, dedicated to X-ray absorption spectroscopy in the hard X-ray range, was installed on a bending magnet source and covered the 2.4 - 27.0 keV energy range, thus allowing the study of a large number of elements, from sulphur to bismuth. The optical scheme guaranteed a stable and spatially homogeneous beam over the whole energy range, and the detection system assured high quality data in transmission and fluorescence mode. These characteristics met the needs of a large number of researchers for the electronic and local structural characterization of systems relevant in many scientific fields: from materials science to solid state physics, from electrochemistry to environmental and earth sciences.

In the framework of the Elettra 2.0 project, the XAFS beamline is being moved to a different position with a source equivalent to the previous one. The control system, the acquisition strategy and the infrastructure for solid-gas interaction experiments will be upgraded, allowing for further developments of the sample environment. At the same time, a completely new beamline dedicated to XAS (XAS-miniWiggler), will be built. The beamline will cover the energy range from 4.7 to 41.5 keV with focusing capability down to 100 x 100 mm² at the sample position. At the endstation, in addition to standard XAS applications, an analyzer for High Energy Resolution Fluorescence Detected-XAS (HERFD-XAS) and X-ray Emission Spectroscopy (XES) will be implemented.

See <http://www.elettra.eu/elettra-beamlines/xaafs.html> for more information.

Job description

The successful candidate will join the beamline staff in commissioning and running of the X-ray absorption spectroscopy beamlines and he/she will be involved in the upgrade program of XAFS and XAS-mW beamlines.

After the commissioning phase, she/he is expected to develop her/his own research program using X-ray absorption spectroscopy and to promote the capabilities and scientific accomplishments of the beamlines. At the same time, he/she is expected to provide daily high-quality support to external users.

In addition, she/he will have the possibility to pursue her/his personal research by using the available instrumentation during dedicated in-house research beamtime. She/he is also expected to be involved in submitting proposals to suitable funding agencies and establish new research collaborations.

Qualifications

Elettra - Sincrotrone Trieste S.C.p.A.

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A PhD in Physics, Chemistry, Materials Science or related disciplines obtained no more than 6 years prior to the application deadline is required, together with proven experience in X-ray absorption spectroscopy and related techniques obtained during postdoctoral activity in academic institutions and/or private companies.

Coding capabilities using Python or equivalent languages and/or knowledge of High Energy Resolution Fluorescence Detected-XAS (HERFD-XAS) and X ray Emission Spectroscopy (XES) techniques are highly desirable.

The following competences will be also considered as additional assets:

- experience developing and commissioning complex instrumentations and experimental setups;
- previous experience as local contact at synchrotron XAS beamlines;
- knowledge of advance characterization techniques like XANES simulation and ab initio calculations (e.g. DFT).

Good time management skills and ability to prioritize are expected, together with strong interpersonal and communication skills and the ability to interact with staff and facility users at all levels, as well as to collaborate effectively in a multidisciplinary team-oriented environment.

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 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 with a complete list of the candidate's publications (scientific papers, book chapters, patents, technical reports, ...) and any relevant information for the position, highlighting the pertinence to the present position and 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 with the provisions of Legislative Decree 96/2026.

The deadline for the submission of the application is September 6, 2026.

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Elettra Sincrotrone Trieste

We thank all applicants in advance.

For more information, please contact Giovanni Agostini (email: giovanni.agostini@elettra.eu).

To apply for this position please visit the following link:

<https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=4306>

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