

# Senior scientist for the $\mu$ XRF beamline at Elettra 2.0

Deadline: 26 June 2025

Ref: DA/25/16

## Background

Elettra Sincrotrone Trieste is an international multidisciplinary research center operated as a user facility, featuring a 2.0/2.4 GeV, third-generation synchrotron light source (Elettra), a new free-electron laser light source (FERMI) and a variety of support laboratories. The extremely high quality of the machines 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 source - Elettra 2.0 - belonging to the new generation of storage rings (DLSR or Diffraction Limited Storage Ring) is being developed. 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 will have to be upgraded and new beamlines developed to take full advantage of the characteristics of Elettra 2.0. The new machine is scheduled for commissioning in the second half of 2026. See <http://www.elettra.eu> for more information.

## Beamline/Activity/Project description

The present X-ray fluorescence (XRF) beamline at Elettra is equipped with a versatile experimental station that supports a wide array of X-ray spectrometry techniques, including Grazing Incidence/Exit X-Ray Fluorescence, Total Reflection XRF, XRF, X-Ray Reflectometry, and X-Ray Absorption Near Edge Spectroscopy (XANES). These capabilities enable detailed studies of materials across diverse research fields, such as chemistry, physics, materials science, environmental science, cultural heritage etc. The XRF beamline is operated in collaboration with the International Atomic Energy Agency (IAEA). For more information, please visit this link:

<https://www.elettra.eu/lightsources/elettra/elettra-beamlines/microfluorescence/x-ray-fluorescence.html>.

As part of the Elettra 2.0 upgrade program, the XRF beamline is undergoing a comprehensive upgrade. The new  $\mu$ XRF beamline will feature an in-vacuum undulator and operate in a photon energy range from 2000 eV to 17000 eV. The advanced source and optical design will provide a micrometric-sized beam at the sample with a flux of  $10^{12}$  photons per second. The new experimental station is currently under design and will offer flexibility for a wide range of experiments. While the main techniques will include X-ray fluorescence with micrometric spatial resolution and X-ray absorption spectroscopy, the present design is flexibly conceived for the integration of further X-ray techniques.

The upgraded  $\mu$ XRF beamline at Elettra 2.0 is set to become a highly versatile microprobe platform, enabling multimodal material characterization and offering exciting, cutting-edge research opportunities.

## Job description

The search is for a senior scientist that will lead the new  $\mu$ XRF beamline at Elettra 2.0, playing a key role in the development and operation of the new beamline at Elettra Sincrotrone Trieste, collaborating closely with the Elettra staff and partners. Initially, the successful candidate will contribute to the design of the experimental station, as well as to the installation and optimization of the beamline, which is expected to be operational by June 2028.

The candidate will be expected to manage a research team and promote collaborative initiatives. In this role, the successful candidate will take the lead in designing and executing a research program, while actively being engaged in the management of the beamline to ensure its effective operation. A key responsibility will be to strengthen and expand the user community, ensuring high-quality user support and facilitating knowledge sharing within the whole beamline team. Additionally, the successful candidate will be expected to submit proposals to relevant funding agencies and actively engage in collaborative projects, leveraging a broad professional network to drive the goals of the beamline and contribute to broader research initiatives.

## Qualifications

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Elettra Sincrotrone Trieste

A PhD in Physics, Chemistry, Engineering, or related disciplines is required, together with in-depth knowledge and a suitable publication records in the field of X-ray absorption spectroscopy and/or X-ray fluorescence techniques with synchrotron radiation. Preference will be given to candidates who have long-term experience in the design and implementation of complex instrumentation and user support at synchrotron radiation facilities. The successful candidate should possess excellent interpersonal skills, fostering collaborations within a team-oriented environment and integration into ongoing research partnerships. A strong scientific vision, along with the ability to lead and manage research programs as proven by the coordination of /participation in projects funded by national, European or international funding agencies is expected of all beamline leaders at Elettra.

## General information

The appointment envisioned is a permanent staff position, with a 6 months trial period.

The salary will be commensurate with previous experience and qualifications of the candidate. Applications should include a full curriculum vitae, the names and contact information (including electronic mail) of up to three individuals who have agreed to provide references.

The interviews may be held via video conferencing.

The ranking of eligible candidates resulting from this selection procedure may be used for additional appointments within the following 24 months.

The deadline for the submission of the application is June 26, 2025.

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 (subsection 16ter) of Italian legislative decree no. 165/2001.

We thank all applicants in advance.

For more information, please contact Lisa Vaccari (email: [lisa.vaccari@elettra.eu](mailto:lisa.vaccari@elettra.eu)).

To apply for this position please visit the following link:

<https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=4254>

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