



Elettra Sincrotrone Trieste

# Scientist for Small Angle X-ray Scattering (SAXS) at Elettra

Deadline: 28 February 2025

Ref: DA/24/62

## 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 SAXS beamline at Elettra is devoted to advanced hard X-ray scattering techniques in the field of biomedicine and materials science and is operated and maintained in collaboration with the Institute of Inorganic Chemistry of the Technical University of Graz (Austria). The beamline is employed for time-resolved studies of structural transitions on different time scales down to the sub-millisecond and even ps single-pulse time ranges, on solutions and partly ordered systems containing structures of up to 100 nm dimensions in real-space. In addition, grazing-incidence (GISAXS) measurements are performed to study self-assembly processes on surfaces, or to perform structural characterizations of thin films. GISAXS measurements can be performed with many different sample environments (e.g., autosampler, flow-through cell, humidity cell, electrochemical cells etc.) and, simultaneously, Wide-Angle X-ray Scattering (WAXS) data can be recorded. Users can select the different sample holders available (e.g., rapid mixing, T-jump, high pressure cell, etc.), or install their own specialized sample equipment. See <https://www.elettra.trieste.it/elettra-beamlines/saxs.html> for more information.

In the framework of the Elettra 2.0 upgrade plan, a new high-brilliance SAXS beamline (HB-SAXS) is being built. It will be based on an in-vacuum undulator (IVU) and will cover a photon energy range from 4.5 to 17 keV with micrometric spot size and photon flux of >1012 phot/s. The scientific activity of the HB-SAXS beamline will extend the classical applications of SAXS, and allow experiments in which high brilliance, small spot sizes and coherence are essential, such as, e.g., picosecond pump-probe experiments, 3D SAXS tensor tomography, X-ray photocorrelation spectroscopy, pychography and coherent SAXS imaging.

## Job description

The successful candidate will work closely with the staff of Elettra Sincrotrone Trieste and of the Austrian partner on the existing SAXS beamline, as well as contribute to the design, construction and optimization of the experimental stations of the new HB-SAXS beamline in order to meet the high standards of the user community for the characterization of biological systems and new materials.

In addition, she/he will also provide high-quality support to external users, thus gaining opportunities for collaborative work at the frontiers of the field before the dark period starting in July 2025, when the removal of Elettra and the installation of Elettra 2.0 will take place. User operations of the new Elettra 2.0 facility is expected to start in January 2027.

She/he is also expected to establish new research collaborations and to be involved in submitting proposals to suitable funding agencies.

## Qualifications

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

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A PhD in Physics, Chemistry, Engineering or related disciplines is required. Proven expertise in the design and development of complex instrumentation (i.e., synchrotron instrumentation, beamlines, experimental stations, etc.) is expected, together with a suitable publication record in SAXS and/or SANS.

The candidate should possess strong interpersonal skills to pursue collaborative research programs in a team-oriented environment and to become part of existing research collaborations.

Good time management skills and ability to prioritize are expected, together with the ability to interact with project partners and to work as part of a multi-disciplinary team.

Good oral and written communication skills in English are essential.

## General information

The appointment envisioned is a fixed-term contract with an initial duration of 24 months, renewable upon agreement between the parties. By the end of 2026 the Company may consider opening a call for a permanent position as beamline scientist, subject to the development of the SAXS program.

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 deadline for the submission of the application is February 28, 2025.

Permanent employees of Elettra Sincrotrone Trieste S.C.p.A. and 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 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=4235>

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