



Elettra Sincrotrone Trieste

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

Deadline: 17 June 2022

Ref: DA/22/18

## 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. See <http://www.elettra.eu> for more information.

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. In addition, three in-vacuum undulators and two high-field superbends will be installed. The new machine is scheduled for commissioning in the second half of 2026.

## Beamline/Activity/Project description

The SAXS beamline at Elettra is devoted to advanced hard X-ray imaging techniques in the field of biomedicine and materials science. The beamline is run and maintained in collaboration with the Institute of Inorganic Chemistry of the Technical University of Graz (Austria). The SAXS beamline is employed for time-resolved studies of structural transitions on different time scales - down to the sub-millisecond time range - in solutions and partly ordered systems containing structures of up to 100 nm 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. SAXS measurements can be performed with many different sample environments (e.g., autosampler, flow-through cell, humidity cell, etc.) and, simultaneously, also differential Scanning Calorimetry (DSC) and Wide-Angle X-ray Scattering (WAXS) data can be obtained. Users can select different types of sample holders (e.g., rapid mixing, T-jump, 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 3.5 to 15 keV with a micrometric spot size and photon flux of 10<sup>12</sup> 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 extremely high intensities 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, contributing to its experimental activity, including support to experiments proposed by external users. He/she will participate in the design and implementation of the technical developments of the beamline, as well as in the other scientific activities involving hard X-ray scattering techniques at Elettra.

Moreover, she/he will contribute to the design, construction and optimization of the experimental stations of the HB-SAXS beamline in order to meet the requirements of the user community for the characterization of biological systems and new materials.

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

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

S.S. 14 Km 163,5 in Area Science Park  
34149 Basovizza, Trieste, Italy  
T. +39 040 37581  
F. +39 040 938 0903

P.IVA e C.F. IT00697920320  
Cap. Soc. € 47.632.663,00 i.v.  
PEC: [sincrotrone.trieste.elettra@legalmail.it](mailto:sincrotrone.trieste.elettra@legalmail.it)  
[www.elettra.eu](http://www.elettra.eu)

Iscritta al Registro delle Imprese di Trieste  
Società di interesse nazionale  
ai sensi dell'art. 10, comma 4,  
L. 19 ottobre 1999 n. 370

CERTIFIED  
MANAGEMENT SYSTEM



UNI EN ISO 9001:2015  
UNI ISO 45001:2018



Elettra Sincrotrone Trieste

## Qualifications

A PhD in Physics, Chemistry, or related disciplines is required. Proven experience and a suitable publication record in SAXS and/or SANS, and in the related data processing and analysis tools are expected. Experience in the development of instrumentation for synchrotron-based hard-X-ray scattering experiments will be considered an asset.

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.

The appointment will be a fixed-term contract with an initial duration of 12 months. For exceptionally qualified candidates a longer term contract might be considered.

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.

Due to the situation related to the COVID-19 virus, the interviews will be performed through video conferencing.

The deadline for the submission of the application is June 17, 2022.

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, 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. We thank all applicants in advance.

For more information, please contact Sigrid Bernstorff (email: [sigrid.bernstorff@elettra.eu](mailto:sigrid.bernstorff@elettra.eu)).

To apply for this position please visit the following link:

<https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=2581>

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

S.S. 14 Km 163,5 in Area Science Park  
34149 Basovizza, Trieste, Italy  
T. +39 040 37581  
F. +39 040 938 0903

P.IVA e C.F. IT00697920320  
Cap. Soc. € 47.632.663,00 i.v.  
PEC: [sincrotrone.trieste.elettra@legalmail.it](mailto:sincrotrone.trieste.elettra@legalmail.it)  
[www.elettra.eu](http://www.elettra.eu)

Iscritta al Registro delle Imprese di Trieste  
Società di interesse nazionale  
ai sensi dell'art. 10, comma 4,  
L. 19 ottobre 1999 n. 370

CERTIFIED  
MANAGEMENT SYSTEM



UNI EN ISO 9001:2015  
UNI ISO 45001:2018