



Elettra Sincrotrone Trieste

Postdoctoral Research Associate at ESCA Microscopy

Deadline: 18 November 2022

Ref: DB/22/32

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 ESCA Microscopy beamline provides photons in the energy range 400-1200 eV. The beamline houses a zone-plate-based scanning photoemission microscope (SPEM) to perform spatially resolved photoemission spectroscopy and imaging, with lateral resolution down to 100 nanometers. Research projects at ESCA Microscopy are focused on the study of the chemical, electronic and physical properties of materials at the sub-micron scale, in fields ranging from surface science and chemistry to solid state physics. These activities are performed by exploiting the capabilities presently offered by ESCA Microscopy and by further developing its instrumentation in order to meet the challenges of the upcoming research proposals.

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

Job description

The successful candidate will be involved in the study of chemical and electronic properties of materials and nanostructures with spatially resolved photoemission. Her/his research activity will focus on diverse systems, such as multi-wall carbon nanotubes, functionalized 2D materials, solid oxide fuel cells, semiconducting nanowires, transparent conductive oxides, single crystal and polycrystalline catalysts for model catalytic reactions and investigate their interactions with gases and/or metallic adlayers. The research associate is expected to propose and develop research independently; she/he will be requested to provide assistance to and collaborate with external users. Furthermore, as part of the beamline staff, she/he will ensure the ordinary operation of ESCA Microscopy, its maintenance, and collaborate to the related upgrade program.

Qualifications

A Ph.D. in Physics, Chemistry or a related discipline is required. The candidate must not have had more than 6-years of total 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 December 2022.

Proven experience in at least two of the following fields is required:

- X-ray photoelectron spectroscopy (XPS) and/or photoemission microscopy;
- near ambient pressure XPS, characterization of solid state materials for electrochemical applications (e.g., solid oxide fuel cell (SOFC), batteries);

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
www.elettra.eu

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- surface science methods for surface analysis and sample surface preparation, film growth.

The following qualifications will be considered as additional assets:

- Previous participation in experiments at synchrotron radiation facilities;
- experience in the construction of scientific equipment relevant to UHV systems or for synchrotron beamlines.

The successful candidate should possess strong interpersonal skills favoring collaborative research programs in a team-oriented environment.

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.

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 appointment will be a fixed term contract with an initial duration of 12 months. The salary will be commensurate with previous experience and qualifications of the candidate.

Depending on the evolution of the COVID-19 pandemic, the interviews may be held via video conferencing.

The deadline for the submission of the application is November 18, 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 Luca Gregoratti (email: luca.gregoratti@elettra.eu).

To apply for this position please visit the following link:

<https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=2761>

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