



Elettra Sincrotrone Trieste

Postdoctoral Research Associate at SuperESCA

Deadline: 10 June 2022

Ref: DB/22/16

Company description

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 SuperESCA beamline provides linearly polarized photons in the energy range 90-1500 eV with high flux and energy resolution. The beamline serves an end station to perform primarily high resolution photoemission and absorption spectroscopy and X-ray photoelectron diffraction (XPD). The availability of advanced instrumentation makes SuperESCA unique in its emphasis on fast-XPS. The research projects at SuperESCA include the study of the electronic and chemical properties of surfaces and nanostructures, the analyses of surface reactions in real-time and the determination of the atomic structure of surfaces and interfaces, including 2D materials. These activities are performed by exploiting the capabilities presently offered by the SuperESCA beamline and by further developing its instrumentation in order to accomplish the experimental needs.

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

Job description

The successful candidate will be involved in the study of the electronic, chemical and structural properties of complex and in-situ prepared materials, including 2D systems, in different domains of surface science and surface chemistry. He/she will work together with the beamline staff to perform the ordinary maintenance of SuperESCA and ensure its routine operation. Moreover, he/she will give assistance and collaborate with the external users in running and further developing the SuperESCA end station in order to meet the experimental needs of the scientific community.

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 October 2022.

A background in ultra-high-vacuum methods for surface analysis, sample surface preparation, film and nanostructures growth is required. A track record in surface science is desirable.

Proven experience in the at least two of the following techniques is required: X-ray photoelectron spectroscopy, angle-resolved photoemission, photoelectron diffraction and absorption spectroscopy.

The following qualifications will be considered as additional assets:

- Previous participation in experiments at synchrotron radiation facilities

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

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- Experience in the construction of scientific equipment relevant to UHV systems or for synchrotron beamlines
- Programming skills in LabView and Igor Pro, with demonstrated ability in data processing

The successful candidate should possess strong personal 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 persons 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.

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 10, 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 Silvano Lizzit (email: silvano.lizzit@elettra.eu).

To apply for this position please visit the following link:

<https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=2561>

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