



Elettra Sincrotrone Trieste

Electronic Engineer for Nano Foundry and Fine Analysis (NFFA) project

Deadline: 8 March 2023

Ref: GA/23/8

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 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 NFFA project targets the development of a distributed infrastructure for nanoscience with an open-access structure, integrating facilities for growth, synthesis and fine analysis of nanostructures and nanosystems by means of tools and methods of the analysis of matter. Available analytical facilities are based on large research infrastructures and sources of pulsed radiation located at Elettra Sincrotrone Trieste, in connection with *NFFA-Europe (NEP)*. *NFFA* develops a *FAIR* (Findability, Accessibility, Interoperability, and Reusability) *data-repository* project focused on Nanoscience. The *NFFA_LdS* subproject aims at further developing the multi-technique *NFFA* facility within the Elettra 2.0 project.

Job description

The successful candidate will be responsible for the upgrading of existing electron detectors, designing new electron detectors and other instrumentation to support experimental activities, managing all technical aspects of instrumentation design and construction, developing HDL firmware and user-friendly high-level software to control and coordinate laboratory instruments and managing the acquisition and storage of data and metadata in a FAIR mode. She/he is expected to maintain complete and appropriate documentation concerning the instrumentation developed and its adaptation to the experimental stations. In particular, the experimental set-ups and projects related to this activity will be the APE Low Energy and High Energy and APE-TX beamlines, and the SPRINT/T-Rex experimental station

Qualifications

A PhD or master's degree in electronic engineering is required.

Proven experience in the development of scientific instrumentation and user-friendly high-level software for scientific experiment are required, together with a deep understanding of all analog and digital aspects related to this development, starting from front-end electronics.

Expertise in solid-state and MCP-based particle detectors, ability to develop low-level code in HDL languages and perform CAD design of electronic boards are also required.

A deep knowledge of Altium Design, Verilog HDL, Quartus, LabVIEW is expected.

Good oral and written communication skills in English are essential.

Good time management skills and ability to prioritize are expected, together with the ability to interact with staff at all

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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levels and to work as part of a multi-disciplinary team.

The deadline for the submission of the application is March 8, 2023.

The initial appointment envisioned is a fixed term contract with an initial duration of 12 months, renewable upon agreement by the parties. The salary will be commensurate with the previous experience and qualifications of the candidate.

Applications should include full curriculum vitae and, if possible, contact information (including electronic mail) of the two references.

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

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 Giuseppe Cautero (email: giuseppe.cautero@elettra.eu).

To apply for this position please visit the following link:

<https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=3021>

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