



Elettra Sincrotrone Trieste

# Postdoctoral Research Associate at MagneDyn

Deadline: 12 January 2024

Ref: DB/23/44

## 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 MagneDyn beamline at FERMI enables experimental access to the transient magnetic states of matter, fostering pioneering research in the fields of femtomagnetism, spintronics, strongly electron and magnetic correlated systems, carbon based materials. The beamline exploits the time structure, full coherence, variable polarization and harmonic content/multi-color operation of the FERMI FEL source. Advanced techniques such as magneto core level Kerr effect (MOKE), time-resolved XMCD and RIXS core level scattering are routinely utilized. Utilizing pump-and-probe methodologies with FERMI's integrated laser systems, the beamline enables the exploration of complex magnetodynamics in response to electronic and lattice excitations. More detailed information can be found on the MagneDyn Beamline website.

## Job description

The postdoctoral position at the MagneDyn beamline offers a distinctive opportunity for researchers aiming to make impactful contributions to experimental magnetism research. The successful candidate will work with advanced instruments such as the EUV-polarimeter, time-resolved XMCD setup, and resonant RIXS end-station. The role demands a proactive approach to supporting users through every phase of their activity at the beamline, from preparing the experimental set-up to conducting complex data analysis and writing scientific manuscripts. In addition to operational tasks, the position offers creative fulfillment, enabling the postdoctoral researcher to actively shape and lead internal research projects in emerging areas such as femto-magnetism and electron dynamics in carbon-based materials. Within a collaborative and intellectually stimulating environment, the postdoctoral researcher will play a pivotal role in securing research funding, actively participating in proposal writing, and fostering partnerships with external academic and research institutions. Mentoring students and nurturing their scientific development are also valued aspects of the role.

## Qualifications

A Ph.D. in Physics or related discipline is required. The candidate must not have 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 January 2024.

A solid background in FEL or synchrotron experimental methods and expertise in time-resolved experimental techniques, supported by a publication record commensurate with career advancement, is expected. Experience in managing and maintaining pulsed laser systems, familiarity with scientific instrumentation related to MOKE setups, proficiency in Python or Matlab would be considered beneficial.

The successful candidate should possess strong personal skills favoring collaborative research programs in a

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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.

## General information

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.

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 deadline for the submission of the application is January 12, 2024.

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 Marco Malvestuto (email: [marco.malvestuto@elettra.eu](mailto:marco.malvestuto@elettra.eu)).

To apply for this position please visit the following link:

<https://www.elettra.trieste.it/it/about/careers/working-withus.html?id=3642>

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