

Welcome and Overview of Elettra, FERMI and CERIC

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The 2.4 GeV third-generation synchrotron radiation source Elettra in Trieste was upgraded with a full-energy injector and operates now routinely in top-up mode, for maximum source stability, reproducibility and average brightness. The 24 operating beamlines provide open access through peer-review to researchers from over 50 countries every year. Major facilities for electronic and structural characterization, soft-x-ray microscopy, x-ray diffraction, elastic and inelastic scattering, lithography and nanofabrication are operated by the staff of the facility and of the numerous international partner institutions, and are accessed by more than two thousand users every year.

FERMI, the only seeded free-electron laser (FEL) user facility currently available worldwide, based on a 1.8 GeV normal conducting linac, has recently been completed on the Elettra site. The FERMI FEL-1 line is open to users for wavelengths down to 20 nm, while the FERMI-FEL-2 laser line, optimized for 4 nm operations, is currently under commissioning. The seeded character of the source allows for unprecedented control in FEL pulse intensity, wavelength and linewidth and the APPLE-II undulators afford full control of the polarization. Some 25 international institutions are currently involved in the implementation of beamlines for diffraction and projection imaging, low density matter, elastic and inelastic scattering, terahertz and magnetic dynamics studies at FERMI.

Starting next year, access to Elettra and to many other characterization and processing techniques, including nuclear magnetic resonance, neutron diffraction, transmission electron microscopy, and nanofabrication, will be possible by submitting single multi-technique proposals to the Central European Research Infrastructure Consortium (CERIC-ERIC), a new European entity with statutory seat in Trieste, and comprised of multidisciplinary large scale facilities located in Austria, Croatia, the Czech Republic, Hungary, Italy, Poland, Romania, Serbia and Slovenia.