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# A Coherent Imaging XUV-FEL users end-station for the EuPRAXIA@SPARC_LAB FEL

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A proposal for building a Free Electron Laser, EuPRAXIA@SPARC_LAB, at the Laboratori Nazionali di Frascati, is at present under consideration. This FEL facility will exploit plasma acceleration to produce ultra-bright photon pulses with durations of few femtoseconds down to a wavelength between 2 and 4 nm, in the so called "water window". The project is now focused on machine development, but it will host a user end-station to allow performing photon experiments in different areas.
The main class of experiments will include coherent diffraction imaging, soft X-ray absorption spectroscopy, Raman and photofragemtnation measurements. These techniques will allow studying a variety of samples, both biological and inorganic, providing information about their structure and dynamical behavior. In this context, the possibility of inducing changes in samples via pump pulses leading to the stimulation of chemical reactions or the generation of coherent excitations would tremendously benefit from pulses in the soft X-ray region. High power synchronized optical lasers will also be made available for laser pump-FEL probe experiments. Moreover, a split-and-delay station will allow performing XUV-XUV pump-probe experiments.
In order to perform the widest possible class of experiments, from coherent imaging, to diffraction and spectroscopy, emission, absorption, a top class experimental end-station, including a dedicated section with beam diagnostics and focusing devices and a highly flexible experimental chamber will be built. In this talk an overview of the user end-station including details about sample delivery, data collection, analysis and data storage will be given.

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