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SPARC_LAB test facility for Advanced Electron Beam Applications

The SPARC_LAB (Sources for Plasma Accelerators and Radiation Compton with Lasers and Beams) facility is a state-of-the-art research center at Frascati National Laboratories (Rome, Italy) designed to provide external users with access to a high-brightness electron beam for a wide range of scientific applications. SPARC_LAB consists of a photoinjector, SPARC, capable of generating high-brightness electron beams up to 170 MeV, and a multi-hundred terawatt laser, FLAME, which can produce high-power and ultra-short laser pulses. At present, SPARC is oriented to research high-gradient acceleration with plasma, able to produce and accelerate electron beams capable of driving the 12 m long undulator for FEL generation, in the framework of the international EuPRAXIA project. Through the Eurolabs project, the aim is to provide and fund access to SPARC_LAB for external researchers, enabling experimental activities using the SPARC linear accelerator and the FLAME laser. This initiative fosters collaboration within the international scientific community, driving advancements in plasma-based acceleration, free electron lasers, and other frontier technologies.

Work-package

WP3 - RIs for Accelerator R&D

Facility identifier

INFN - LNF

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