Laser-Plasma Accelerators Workshop



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Staus of the EuPRAXIA project

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The EuPRAXIA project (European Plasma Research Accelerator with Excellence in Applications) aims to develop advanced plasma-based accelerator technologies to create compact, high-performance particle accelerators. The EuPRAXIA@SPARC_LAB facility is the beam driven pillar of the EuPRAXIA project which is expected to provide by the end of 2029 the first European Research Infrastructure dedicated to demonstrating usability of plasma accelerators delivering high brightness beams up to 1-5 GeV for users.

One of the primary goals of EuPRAXIA@SPARC_LAB is to develop a short-wavelength Free Electron Laser (FEL) that can generate radiation in the "water window" of the electromagnetic spectrum, which is useful for biophysical research. Additionally, an X-ray radiation source based on betatron radiation is set to be implemented by the end of 2025 as part of the PNRR initiatives. The production of high-quality electron beams, essential for driving an FEL, is also expected to play a crucial role in advancing the development of a plasma-driven future Linear Collider (LC).

In this presentation, we highlight the progress of the EuPRAXIA collaboration, with a particular focus on the EuPRAXIA@SPARC_LAB pillar, for which we are in the process of drafting the Technical Design Report.

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Track Classification: Facilities