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Beam dynamics studies of the EuPRAXIA@SPARC_LAB plasma-based accelerator

Wednesday 4 June 2025 16:00 (2 hours)

The interest in plasma-based accelerators as drivers of user facilities is growing worldwide thanks to their compactness and reduced costs. The EuPRAXIA@SPARC_LAB collaboration is preparing a technical design report for a multi-GeV plasma-based accelerator with outstanding electron beam quality to pilot an X-ray FEL, the most demanding in terms of beam brightness. The paper reports on the beam dynamics studies for the EuPRAXIA@SPARC_LAB accelerator aiming to demonstrate a reliable operation of the plasma-based accelerator that will be operated in the PWFA configuration. Perspectives and constraints of the plasma-based accelerator will be described in terms of tunability and stability of the electron beam and the downstream FEL source.

Footnotes

Paper preparation format

LaTeX

Region represented

Europe

Funding Agency

Author: GIRIBONO, Anna (Istituto Nazionale di Fisica Nucleare)

Presenter: GIRIBONO, Anna (Istituto Nazionale di Fisica Nucleare)

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