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Electron beam instrumentation for EuPRAXIA

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Plasma-driven FELs require electron beams of high quality to facilitate effective FEL amplification, mirroring the stringent beam property requirements of FELs driven by radio frequency structures. Unique to plasma accelerators, however, are specific challenges such as dealing with the small beam size in the plasma, and managing a significant energy chirp within the beam. The study offers a comparative analysis of existing techniques and introduces novel instrumentation solutions that optimize beam quality and stability, ensuring a stable and reliable operation of EuPRAXIA.

Footnotes

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Primary authors: Prof. CIANCHI, Alessandro (Università degli Studi di Roma "Tor Vergata"); ERICSON, Evan (Ecole Polytechnique Fédérale de Lausanne); VERRA, Livio (INFN); CRAIEVICH, Paolo (Paul Scherrer Institut); ISCHEBECK, Rasmus (Paul Scherrer Institut)

Presenter: ISCHEBECK, Rasmus (Paul Scherrer Institut)

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