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Studying the basics of plasma physics using long range plasma

Tuesday, 9 May 2023 16:30 (2 hours)

Plasma wakefield acceleration (PWFA) is a burgeoning field, attracting much attention as an option to extend acceleration gradients from the present 100 MeV/m level to the TeV/m level. The effort will be expended to resolve the question of the long-term behaviour of the disturbances left behind in the plasma and the time it takes to reach equilibrium after the wakefield interaction occurs. The present limitations on gradient arise from material electromagnetic breakdown thresholds.
Methods for exploring the beam's longitudinal and transverse phase space qualities have been developed in the context of an increasing worldwide effort. UCLA LAPD laboratory, with its diagnostics, permits the spatio-temporal resolution of electron density, magnetic field, and electro-magnetic signals in the plasma over long-time scales. We aim to explore intense electron beams for wake excitation available at the LAPD, commissioning the SAMURAI photoinjector and its electron beam production.

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Footnotes

I have read and accept the Privacy Policy Statement

Yes

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