ICABU 2023
November 8 (Wed) – 10 (Fri), 2023
IBS Science Culture Center, Daejeon, Korea

Contribution ID: **23** Type: **Oral (ICABU)**

E336 Experiment at SLAC FACET-II on beam-driven plasma wakefield acceleration in structured solids: status and prospects

Plasma wakefield acceleration in structured solids (nanotubes and crystals) can produce extremely high acceleration gradients exceeding 1 TeV/m. The nuclei-free space in nanotubes or crystals can be exploited both to produce plasma waves and to accelerate charged particles, simultaneously focusing them within their channel and almost avoiding their collisions with ions.
We do the simulations of plasma waves using the PIC code CALDER.
We present the progress and the prospects of the E336 Experiment [1] at SLAC FACET-II Facility on beam-driven plasma wakefield acceleration in structured solids.

[1] R. Ariniello et al., Snowmass'2021 AF6: Advanced Acceleration Concepts, arXiv: 2203.07459

The work at LOA and CEA was supported by the ANR (UnRIP project, Grant No. ANR-20-CE30-0030). The work at LOA was also supported by the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (M-PAC project, Grant Agreement No. 715807). A. Sytov acknowledges support by the European Commission through the H2020-MSCA-IF TRILLION project (GA. 101032975). B. Martinez acknowledges the support of the Portuguese Science Foundation (FCT) Grant No. PTDC/FIS-PLA/3800/2021. H. Piekarz and V. Shiltsev's work was supported by the Fermi National Accelerator Laboratory, managed and operated by Fermi Research Alliance, LLC under Contract No. DE-AC02-07CH11359 with the U.S. Department of Energy. The work at SLAC was supported by U.S. DOE FES Grant No. FWP100331 and DOE Contract DE-AC02-76SF00515.

Abstract Fields

(ICABU WG1) Accelerator Systems

Paper Submission Plan (for reference only)

Yes

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