



Contribution ID: 233

Type: **Contributed Oral**

Progress towards Energy Doubling and Emittance Preservation through Beam Driven Plasma Wakefield Acceleration at FACET-II

Tuesday, 8 November 2022 13:30 (15 minutes)

The E300 experiment at FACET-II aims to demonstrate energy doubling of a witness bunch to 20 GeV through beam-driven plasma wakefield acceleration (PWFA) while preserving emittance and narrow energy spread. This talk will describe the status of the experimental setup including the current and expected accelerator parameters, the plasma source and associated differential pumping system, and post-interaction beam diagnostics. These diagnostics include single- and multi-shot emittance measurements using energy-dispersed beam profile measurements, energy resolved profile measurements to measure energy depletion and acceleration, and betatron gamma ray detectors that will be used to infer information about beam dynamics within the plasma. The first results will be discussed from the initial commissioning runs and from the first self-ionized PWFA interactions in helium and hydrogen gases.

Acknowledgments

Primary author: STOREY, Doug (SLAC National Accelerator Laboratory)

Presenter: STOREY, Doug (SLAC National Accelerator Laboratory)

Session Classification: WG4: Beam-Driven Acceleration

Track Classification: Working Group Parallel Sessions: WG4 Oral: Beam-Driven Acceleration