



Contribution ID: 166

Type: poster

Towards Underdense Photocathode Plasma Wakefield Acceleration at FACET

Monday, 14 September 2015 19:30 (30 minutes)

A comprehensively synchronized beam-laser-plasma photocathode setup has been developed at FACET within the E210 program. Spatial and temporal alignment allow to carry through proof-of-concept experiments, aiming at demonstrating the feasibility of underdense photocathode “Trojan Horse” plasma wakefield acceleration. Multiple laser pulses are synchronized with the 20 GeV electron driver beam based on two electro optical sampling diagnostics, and are independently tunable to accommodate maximum flexibility. Important milestones made towards first realization of the scheme are presented. The scheme promises a route towards production of electron bunches with unprecedented electron bunch brightness, exceeding those of existing facilities by orders of magnitude.

Primary author: Mr KNETSCH, Alexander (University of Hamburg)

Co-authors: Dr DENG, Aihua (UCLA); Prof. HIDDING, Bernhard (Uni Hamburg/DESY & UCLA); Mr BRUH-WILER, David L. (RadiaSoft LLC); Mr WITTIG, Georg (Universität Hamburg, CFEL); ROSENZWEIG, James Benjamin (L); Dr GRACE, Manahan (University of Strathclyde); Dr HOGAN, Mark (SLAC National Accelerator Laboratory); Dr LITOS, Mike (SLAC National Accelerator Laboratory); Mr KARGER, Oliver (University of Hamburg, Institute for Experimental Physics); Dr YAKIMENKO, Vitaly (SLAC National Accelerator Laboratory); Mr XI, Yunfeng (UCLA)

Presenter: Mr KNETSCH, Alexander (University of Hamburg)

Session Classification: Poster Session 1 (WG1-WG2-WG3-WG4) and Wine

Track Classification: WG1 - Electron beams from plasmas