



Contribution ID: 89

Type: talk

FLASHForward: first experimental results

Wednesday, September 18, 2019 4:40 PM (20 minutes)

Plasma accelerators have great potential to form the basis of the next generation of compact linear colliders or FELs. Along with the high accelerating gradients inherent to plasma devices, another key requirement for such future machines is high beam quality—low emittance and low energy spread. The FLASHForward X-1 experiment is aimed at demonstrating the generation and subsequent acceleration of such ultra-high quality electron bunches. The unique combination of a stable, FEL-quality electron beam driver and a 10fs-level synchronised 25 TW laser system allows for demonstration, development and detailed diagnosis of such plasma cathodes. The FLASHForward X-2 experiment will further demonstrate external injection and acceleration of high-quality electron bunches. Using a longitudinally shaped double bunch of electrons, the goal is to show emittance preservation, high-efficiency, low energy spread acceleration in a plasma. We report on the excellent recent progress of these two experiments, as well as our exciting plans for upcoming experimental campaigns.

Primary authors: Dr LINDSTRØM, Carl A. (DESY); PODER, Kristjan (DESY)

Co-authors: MARTINEZ DE LA OSSA, A. (Deutsches Elektronen-Synchrotron DESY); MARTINEZ DE LA OSSA, Alberto (DESY); ASCHIKHIN, Alexander (Deutsches Elektronen-Synchrotron DESY); KNETSCH, Alexander (Deutsches Elektronen-Synchrotron DESY); Mr RAHALI, Amir (DESY); Mr SCHLEIERMACHER, Andrej (DESY); SCHMIDT, Bernhard (DESY); FOSTER, Brian (DESY); FOSTER, Brian (University of Hamburg/DESY/Oxford); SHEERAN, Bridget (DESY); Mr MARUTZKY, Frank (DESY); TAUSCHER, Gabriele (DESY); BOYLE, Gregory (DESY); CHAPPELL, James (University College London); ROECKEMANN, Jan-Hendrik (DESY); SCHWINKENDORF, Jan-Patrick (Deutsches Elektronen-Synchrotron); OSTERHOFF, Jens (Deutsches Elektronen-Synchrotron DESY); GARLAND, Jimmy (DESY, Hamburg); SCHAFFRAN, Joern (Deutsches Elektronen Synchrotron); Mr LUDWIG, Kai (DESY); GOLDBERG, Lars (Deutsches Elektronen-Synchrotron DESY); BOULTON, Lewis (University Of Strathclyde / DESY); SCHAPER, Lucas (University Hamburg / DESY); Mr DINTER, Maik (DESY); Mr MEISEL, Martin (Deutsches Elektronen-Synchrotron); Mr QUAST, Martin (DESY); ZENG, Ming (Deutsches Elektronen-Synchrotron DESY); NIKNEJADI, Paridis (DESY); GONZALEZ CAMINAL, Pau (DESY, Universität Hamburg); Mr POURMOUSSAVI, Paul (DESY); WINKLER, Paul (DESY); Mr KUANG, Peng (DESY); D'ARCY, Richard (DESY); Mrs THIELE, Sandra (DESY); SCHROEDER, Sarah (DESY); DIEDERICHS, Severin (University of Hamburg/DESY/LBNL); BOHLEN, Simon (DESY - FLA); WESCH, Stephan (Deutsches Elektronen-Synchrotron DESY); Mr KARSTENSEN, Sven (DESY); Ms BRÜMMER, Theresa (Deutsches Elektronen-Synchrotron); STAUFER, Theresa; MEHRLING, Timon (Deutsches Elektronen-Synchrotron DESY); MEHRLING, Timon (Deutsches Elektronen-Synchrotron DESY); LIBOV, Vladyslav (DESY)

Presenter: PODER, Kristjan (DESY)

Session Classification: WG1 - PWFA experimental results

Track Classification: WG1 - Electron beams from plasmas