



Contribution ID: 185

Type: poster

Three dimensional bunch shaping for plasma wakefield accelerators

Monday, 16 September 2019 19:00 (1 hour)

Beam driven wakefield acceleration in plasmas is one of the most promising candidates for novel, compact accelerators. Several aspects of this acceleration scheme can be optimised by transverse and longitudinal shaping of the bunch that drives the wake and of the bunch that is accelerated in the wake. The ratio between acceleration of the witness and deceleration of the driver, the transformer ratio, can be increased when triangular driver bunch shapes are utilised. By shaping the witness bunch longitudinal profile, the beam loading of the wake can be tuned, which allows reduction of the energy spread of the accelerated beam. The necessary bunch shaping can be achieved by shaping of the photocathode laser pulses of a photoinjector. Here, we present simulations and first results of transverse and longitudinal bunch shaping with the new photocathode laser system at PITZ, with a pulse shaping section based on spectral masking using spatial light modulators.

Primary authors: LOISCH, Gregor (DESY Zeuthen); Mr CHEN, Ye (DESY); Mr GOOD, James (DESY); GROSS, Matthias (DESY); Mr KOSCHITZKI, Christian (DESY); Mr KRASILNIKOV, Mikhail (DESY); LISHILIN, Osip (DESY); Dr OPPELT, Anne (DESY); STEPHAN, Frank (DESY, Zeuthen site)

Presenter: LOISCH, Gregor (DESY Zeuthen)

Session Classification: Cheese and Wine Poster Session 1

Track Classification: WG1 - Electron beams from plasmas