



Contribution ID: 235

Type: **not specified**

Interactions of Lasers and Electron Beams for Collider-Directed R&D at FACET-II

Tuesday, 23 July 2024 17:00 (15 minutes)

FACET-II is an accelerator test beam facility that delivers high-charge, ultra-short bunches with nC-level charge. FACET also supports a multi-TW laser system that is used to ionize plasmas or collide with electron beams for strong-field QED experiments. Because FACET-II is a test beam facility, both the beam parameters and experimental area can be configured to meet the needs of the experiment. We propose to operate FACET-II with long (mm-scale) bunches with nC charge in collision with long (ps-scale) laser pulses to study Compton polarimetry, laser control of bunch intensity, and laser-based collimation in support of FCC-ee R&D. We seek opportunities to improve the performance of detectors for Compton polarimetry and the reliability of the Compton backscatter (CBS) interactions for the bunch intensity control and collimation studies. Our proposed studies leverage the E320 strong-field QED experimental apparatus and detectors to facilitate these measurements.

Working group

WG7 : Linear Colliders

Primary authors: KNETSCH, Alexander (SLAC National Accelerator Laboratory); O'SHEA, Brendan (SLAC National Laboratory); HOGAN, Mark (SLAC); GESSNER, Spencer (SLAC); REIS, David (SLAC); ZIMMERMANN, Frank (CERN); DREBOT, Illya (INFN Milano); KEINTZEL, Jacqueline (CERN); MEUREN, Sebastian (Stanford University); RAUBENHEIMER, Tor (SLAC)

Presenter: GESSNER, Spencer (SLAC)

Session Classification: WG7