



Contribution ID: 2163 Contribution code: WEPL053

Type: **Poster Presentation**

Experimental demonstration of a straight-merger beamline

Wednesday, 10 May 2023 16:30 (2 hours)

Merging beams from multiple beamlines is critical to energy-recovering linear accelerators and beam-driven wakefield accelerators. Recently, a “straight-merger” beam line was proposed as a compact beamline to merge beams. The concept is based on a deflecting cavity with a superimposed dipole field. It provides a large deflecting kick at the injection phase where the RF and magnetic kicks add up (“deflecting mode”) while a beam injected at a phase where the RF and magnetic field cancel out does not experience any net kick (“transparent mode”). A proof-of-principle beamline of this concept was built at the Argonne Wakefield Accelerator and experimentally tested. This contribution will discuss the experimental performances of the beamline.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary authors: PHILLIPS, Cassandra (Northern Illinois University); PIOT, Philippe (Northern Illinois University)

Co-authors: AL MARZOUK, Afnan (Northern Illinois University); WHITEFORD, Charles (Argonne National Laboratory); WISNIEWSKI, Eric (Illinois Institute of Technology); PARK, Gunn-Tae (Thomas Jefferson National Accelerator Facility); POWER, John (Argonne National Laboratory); DEITRICK, Kirsten (Thomas Jefferson National Accelerator Facility); BENSON, Stephen (Thomas Jefferson National Accelerator Facility); XU, Tianzhe (SLAC National Accelerator Laboratory)

Presenter: DEITRICK, Kirsten (Thomas Jefferson National Accelerator Facility)

Session Classification: Wednesday Poster Session

Track Classification: MC5: Beam Dynamics and EM Fields: MC5.D01: Beam Optics Lattices, Correction Schemes, Transport