

TRANSVERSE-TO-LONGITUDINAL EMITTANCE EXCHANGE AT THE FERMILAB ADVANCED SUPERCONDUCTING TEST ACCELERATOR

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A variable-dispersion bunch compressor chicane with a transverse-deflecting cavity (TDC) may serve as a transverse-to-longitudinal emittance exchangers (EEX). In this paper, we present a design and simulations of a chicane-based EEX for eventual implementation at Fermilab's Advanced Superconducting Test Accelerator (ASTA). Such a beamline is foreseen to enable bunch current profile shaping, bunch compression, and emittance repartioning to tailor the beam per user's requirements.

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