

Abstract Submitted
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Beam-Plasma Interaction Experiments on the Princeton Advanced Test Stand¹ A. STEPANOV, E.P. GILSON, L. GRISHAM, I.D. KAGANOVICH, R.C. DAVIDSON, Princeton Plasma Physics Laboratory — The Princeton Advanced Test Stand (PATS) is a compact experimental facility for studying the fundamental physics of intense beam-plasma interactions relevant to the Neutralized Drift Compression Experiment - II (NDCX-II). The PATS facility consists of a 100 keV ion beam source mounted on a six-foot-long vacuum chamber with numerous ports for diagnostic access. A 100 keV Ar⁺ beam is launched into a volumetric plasma, which is produced by a ferroelectric plasma source (FEPS). Beam diagnostics upstream and downstream of the FEPS allow for detailed studies of the effects that the plasma has on the beam. This setup is designed for studying the dependence of charge and current neutralization and beam emittance growth on the beam and plasma parameters. This work reports initial measurements of beam quality produced by the extraction electrodes that were recently installed on the PATS device. The transverse beam phase space is measured with double-slit emittance scanners, and the experimental results are compared to WARP simulations of the extraction system.

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