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Planned Experiments on the Princeton Advanced Test Stand A. STEPANOV, E.P. GILSON, L. GRISHAM, I. KAGANOVICH, R.C. DAVIDSON, Princeton Plasma Physics Laboratory — The Princeton Advanced Test Stand (PATS) device is an experimental facility based on the STS-100 high voltage test stand transferred from LBNL. It consists of a multicusp RF ion source, a pulsed extraction system capable of forming high-perveance 100keV ion beams, and a large six-foot-long vacuum with convenient access for beam diagnostics. This results in a flexible system for studying high perveance ion beams relevant to NDCX-I/II, including experiments on beam neutralization by ferroelectric plasma sources (FEPS) being developed at PPPL. Research on PATS will concern the basic physics of beam-plasma interactions, such as the effects of volume neutralization on beam emittance, as well as optimizing technology of the FEPS. PATS combines the advantage of an ion beam source and a large-volume plasma source in a chamber with ample access for diagnostics, resulting in a robust setup for investigating and improving relevant aspects of neutralized drift. There are also plans for running the ion source with strongly electro-negative gases such as chlorine, making it possible to extract positive or negative ion beams.

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