Abstract Submitted
for the DPP20 Meeting of
The American Physical Society

Optimized beam fueling in LTX-β WILLIAM CAPECCHI, JAY ANDERSON, University of Wisconsin - Madison, RON BELL, DENNIS BOYLE, PAUL HUGHES, ROBERT KAITA, RICHARD MAJESKI, PPPL, DREW ELLIOTT, ORNL, CHRIS HANSEN, University of Washington, LEONID ZAKHAROV, Li-Wall Fusion — The LTX-β upgrade completed last year included installation of a new 20kV neutral beam for heating and fueling, but initial operation of the beam showed high first orbit losses. In the next phase of operation, core fueling though neutral beam injection (NBI) will be essential for studying the low recycling regime where cold edge fueling is undesirable. Doppler spectroscopy is used along with beam dump/scraper RTDs to analyze beam geometry and maximize throughput into the torus for various beam operational modes. Full ion orbit codes are employed to model beam coupling and deposition and to investigate drift velocities in various combinations of toroidal field and plasma current directions to optimize first orbit confinement. Here we report results of the beam performance optimization and map out a path to maximize neutral beam fueling of LTX-β plasmas.

William Capecchi
University of Wisconsin - Madison

Date submitted: 29 Jun 2020 Electronic form version 1.4