Abstract Submitted
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Active spectroscopy upgrades and neutral beam injection on LTX-β[1] DREW ELLIOTT, THEODORE BIEWER, JOHN CANIK, MATTHEW REINKE, Oak Ridge National Lab, RONALD BELL, DENNIS BOYLE, WALTER GUTTENFELDER, ROBERT KAITA, THOMAS KOZUB, RICHARD MAJESKI, ENRIQUE MERINO, Princeton Plasma Physics Lab — The LTX-β upgrade includes the addition of neutral beam injection (NBI) and increased active spectroscopy. Typical plasmas have been and are expected to remain inboard limited, at 14 cm with minor radii of 18-23 cm. The NBI, 35 Amps of 20 keV particles, will enable active diagnosis of ion velocity distribution profiles through charge exchange (CHERS). 18 CHERS views will cover more than a full minor radius, each sampling 2 cm of major radius. The system has both a set of beam directed "active" views and a symmetric set of views pointing away from the beam for stray light subtraction. Along with measuring ion temperatures and impurity transport, the CHERS diagnostic will measure the plasma rotation profiles. The recently described low recycling regime is predicted to allow for high rotational velocities due to the low neutral drag. The planned NBI has been predicted to give on axis velocities near 100 km/s. Flow shear is expected to increase confinement in this regime by suppressing trapped electron mode and other microturbulence enhanced transport. Upgrades to the Thomson scattering system, including an array of polychromators and a new camera, will assist in diagnosing the low density hot edge in this low recycling regime.

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