Abstract Submitted
for the DPP19 Meeting of
The American Physical Society

Charge exchange recombination spectroscopy on the upgraded Lithium Tokamak eXperiment-β[1] DREW ELLIOTT, THEODORE M. BIEWER, ORNL, RONALD BELL, DENNIS BOYLE, PAUL HUGHES, RICHARD MAJESKI, PPPL, CHRISTOPHER HANSEN, University of Washington, ROBERT KAITA, UTK, SHIGEYUKI KUBOTA, UCLA — The Lithium Tokamak eXperiment-Beta (LTX-β) has recently begun its initial campaign. LTX-β has been operated with typical plasma currents >85 kA and line averaged densities above 10^{18} m^{-3}. A major part of the upgrade was the addition of neutral beam injection (NBI); NBI during the plasma has been achieved with extracted power of >500 kW, more than 3x the average ohmic heating power. To capitalize on the NBI we have installed a new optical system for active charge exchange recombination spectroscopy (CHERS). The new CHERS system, intended to focus on lithium, will measure local impurity concentration, ion temperature, and toroidal velocity. The system has 52 total views, split into 4 groups of 13. The multi-view setup allows for major radii between 26 cm and 59 cm to be sampled with a ˜2 cm spatial resolution. The plasma major radius has been 34-38 cm with a minor radius of ˜20 cm. Half of the views face away from the beam so that the background can be simultaneously subtracted. The cameras used for CHERS have a typical sampling rate of 2.0-2.5 ms while the NBI duration is 5 ms and the plasma duration is >40 ms. Beam optimization, initial charge exchange emission, and comparisons between the different spectrometers and emission lines will be highlighted.

[1]This work supported by US DOE contracts DE-AC02-09CH11466, DE-AC05-00OR22725, and DE-AC52-07NA27344

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Date submitted: 03 Jul 2019 Electronic form version 1.4