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10.27 The CHERS Diagnostic on LTX-

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The lithium tokamak experiment has undergone an upgrade to LTX-β, a major part of which is the addition of NBI. NBI has allowed for a CHERS system to be installed. The CHERS system will measure impurity concentrations (mainly lithium), ion temperature, and toroidal velocity. Previously on LTX these parameters relied on passive spectroscopy and inversion techniques or were unavailable. Typical LTX-β is expected to have its magnetic axis near 35 cm, with minor radii of 18-23 cm. The CHERS system has 52 total views, split into four groups of 13. The beam views sample a major radius of 28-60 cm, with a resolution of 1.5-2.5 cm. A multi-view mounting apparatus was built to accommodate this broad set of views, while maximizing the precision of the system. Because the beam flux cannot be oscillated, half the views point away from the beam symmetrical to the beam views and are used to acquire and then subtract the non-beam related emission. Three separate spectrometers will be used for the diagnostic. The viewing optics are f/1.8, allowing all of the spectrometers to be fully illuminated. Calibration of the system as well as the advantages of various configurations of the spectrometers will be highlighted. This work is supported by US DOE contracts DE-AC02-09CH11466 and DE-AC05-00OR22725

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