

Abstract Submitted
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Development of Triple Probe Diagnostic for the Auburn Linear Experiment of Instability Studies (ALEXIS)¹ CSILLA CZAKO, IVAN ARNOLD, Auburn Univ, AMI DUBOIS, University of Wisconsin, MARK CIANCIOSA, ORNL, EDWARD THOMAS, Auburn Univ — The Auburn Linear Experiment for Instability Studies (ALEXIS) is a cylindrical, magnetized plasma column that is used to study low frequency ion instabilities relevant to the near-Earth space environment. Additionally, ALEXIS is used as a platform to develop probe and spectroscopic diagnostics in support of other plasma experiments, including high magnetic field experiments. This presentation will focus on the development of a new triple probe diagnostic system for ALEXIS. The key advantage of the triple probe is that it gives real time measurements of electron temperature, plasma density, and plasma potential. The triple probe will initially be used to cross-check against the existing single and double-probe diagnostics on ALEXIS. Moreover, due to the time-response of the triple probe - compared to swept-probe measurements - it may be possible to make direct measurements of density and electron temperature fluctuations in the plasma that complement our previous floating potential fluctuation measurements.

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