Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Measurements and spectral modeling of neutral Argon as a diagnostic in the ALEXIS plasma[1] ANDREW KIENE, STUART LOCH, AMI DUBOIS, ASHLEY EADON, EDWARD THOMAS, Auburn University — We present spectral measurements and theoretical results for an argon plasma experiment on the ALEXIS (Auburn Linear Experiment for Instability Studies) device. Langmuir probe measurements for the electron temperature and density profiles along the line of sight were taken for a wide range of plasma B-field settings. Comparisons with theoretical models show that the plasma is not in ionization equilibrium. A theoretical spectrum is constructed using the line of sight profiles and recently calculated R-matrix atomic data. We also investigate the role of a non-equilibrium population in the neutral Ar metastable and how that affects the spectrum.

[1]This work is supported by grants from the US Department of Energy.

Edward Thomas
Auburn University

Date submitted: 22 Jul 2011 Electronic form version 1.4