

Abstract Submitted  
for the TSF07 Meeting of  
The American Physical Society

**Calibration and Alignment of a High Resolution Spectrometer for FRXL and RSX Plasma Experiments** JENNIFER HENDRYX, Angelo State University, GLEN WURDEN, LEONID DORF, THOMAS INTRATOR, XUAN SUN, LANL, MFE TEAM — Measurements of ion temperature and plasma flow are important for better understanding of laboratory plasmas. Plasmas are the key to production of nuclear fusion, and plasma diagnostics are essential for experimental plasma studies. Spectroscopy in particular is useful in analyzing plasma temperature, flow, and impurity content. It utilizes spectral lines' widths, intensities, and locations in the spectrum to determine elements present in the plasma, as well as line shifting and broadening that occur, for example, due to ion thermal motion—Doppler broadening. I assembled and calibrated a 0.5 meter ARC VM505 spectrometer, combined with a 1024x1024 element gated intensified PI-MAX camera as a detector, to view plasma light from the RSX and FRX-L experiments in the P-24 Plasma Physics group. With a 1200 line/mm grating, the resolution FWHM is 0.03 nm, and I was initially able to collect data looking at the 486.1 nm deuterium beta line.

Jennifer Hendryx  
Angelo State University

Date submitted: 25 Sep 2007

Electronic form version 1.4