

Abstract Submitted  
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**Setup and Calibration of a Normal Incidence Spectrometer for use on the CTIX** ELIZABETH MERRITT<sup>1</sup>, Mount Holyoke College, South Hadley, MA, 01075, National Undergraduate Foundation, ELMAR TRABERT, HUI CHEN, Lawrence Livermore National Laboratory, Livermore, CA 94550, DAVID HWANG, Department of Applied Science, University of California at Davis/Livermore, Livermore, CA 94550 — Spectroscopy is a powerful diagnostic tool for examining plasmas and their behavior. In particular, it can be used to determine plasma composition and velocity. I will present the procedure for preparing a normal incidence spectrometer for use on the Compact Torus Injection Experiment (CTIX). The spectrometer uses a 300 line/mm grating and a liquid nitrogen cooled, thinned, back-illuminated charge coupled device (CCD) detector with 1340x1300 pixels of 20  $\mu\text{m}$  x 20  $\mu\text{m}$  area per pixel and has a spectral coverage from extreme ultra-violet to visible. To ensure the highest precision possible for this geometry, I focus the spectrometer, imaging the 100  $\mu\text{m}$  slit onto the CCD camera. Then, the spectrometer is calibrated for wavelengths between 300 nm and 800 nm using a Hg lamp light source. The background noise from the CCD camera is characterized and accounted for during the Hg spectral analysis.

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