

Abstract Submitted
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Passive spectrographic measurement of plasma electron temperatures using impurity line emissions¹ D.T.S. COOK, Kalamazoo College, E.P. GARATE, W.S. HARRIS, W.W. HEIDBRINK, E.H. TRASK, UC Irvine — A photodiode-based passive spectrometer was built in order to estimate electron temperature in the FRC experiment at UC Irvine. The electron temperature is calculated by using a ratio of emitted line intensities from oxygen impurities in the plasma. The use of passive spectroscopy to determine electron temperatures is well documented, and has the important benefit of being noninvasive. The use of line intensities is particularly important for us because other spectrographic techniques, such as those based on Stark broadening or Thompson scattering, are difficult to employ in our experiment. Here we present details of design and construction of the spectrometer, as well as details regarding data acquisition and analysis from the FRC experiment at UC Irvine.

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