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Electron Cyclotron Emission Radiometer CRISTINA MORALES, University of Maryland TREND, Florida International University McNair Program — There is much interest in studying plasmas that generate hot electrons. The goal of this project is to develop a wide band electron cyclotron radiometer to measure the non-Maxwellian rapid rises in electron temperature. These rapid increases in temperature will then be correlated to instabilities in the plasma. This project explores a type of noncontact temperature measurement. We will attempt to show the feasibility of electron cyclotron emissions to measure the Maryland Centrifugal Experiment's electron plasma temperature. The radiometer has been designed to have 100dB of gain and a sensitivity of 24mV/dB given by its logarithmic amplifier. If successful, this radiometer will be used as a diagnostic tool in later projects such as the proposed experiment studying magnetic reconnection using solar flux loops.

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