

Abstract Submitted  
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**A Low Cost Photo-Electric Detector for a Solar Coronal Loop Experiment** RORY PERKINS, PAUL BELLAN, California Institute of Technology — A low cost photo-electric detector was tested for use in a laboratory experiment simulating solar coronal loops. An array of such detectors is desired to image the ultraviolet radiation previously observed in this experiment. The detector had a coaxial design with a magnesium inner disk (chosen for its low work function) and a steel outer cylinder. The detector was placed in a vacuum chamber along with a pulsed mercury flash lamp separated by 50 centimeters. A current-to-voltage amplifier was used to read the detector's output. Numerous tests were conducted, including varying bias voltage, introducing magnetic fields, and occulting and collimating the incoming radiation. Two types of signals, distinguished by the bias voltage polarity, were observed. When the inner disk was negatively biased, the signal appears consistent with a photo-electric signal. With a positively biased inner disk, the signal seemed to be produced by secondary sources: electrons photo-emitted at the chamber walls or released from ionized gas.

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