

Abstract Submitted
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Characterization of the detector for a low voltage, ultra-compact plasma spectrometer¹ JULIANNE MCILVAINE, AMY KEESEE, EARL SCIME, West Virginia University — Modern manufacturing techniques enable the production of wafer-scale plasma spectrometers which use low voltage power supplies. Mass production of low voltage, ultra-compact plasma spectrometers would provide for cost efficient geospace investigations requiring multiple spacecraft (constellations of up to 100 have been proposed) that obtain measurements across a region in space. These spectrometers consist of a collimating aperture, an energy analyzer, and a silicon solid state detector (SSSD). Early tests indicate that these units can detect ions of energies ranging from 3-20 keV simultaneously. Using a SSSD with thinned contacts, we can detect electrons with a lower energy limit of around 2 keV. We present the results of testing a four pixel low voltage silicon solid state detector. An electron beam was shot at the detector in an evacuated chamber to test the detection of these lower energies. Results will lead to improvements in the final design of an eight pixel SSSD with ASIC-based electronics.

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