

Abstract Submitted  
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**Electrostatic dust detector with improved sensitivity**<sup>1</sup> D.P. BOYLE, Columbia University, C.H. SKINNER, A.L. ROQUEMORE, Princeton Plasma Physics Laboratory — Measurement of dust inventories in next-step fusion devices will be necessary to ensure compliance with safety regulations. A device for detection of dust on remote surfaces, consisting of an ultrafine grid of interlocking copper traces biased to 30-50V, has been developed and tested[1]. Impinging dust particles produce temporary short circuits and the resulting current pulses are recorded using nuclear counting electronics. A digital oscilloscope was used to analyze the current pulse waveform under various experimental conditions in order to enhance the sensitivity of the device. Preliminary results indicate an order of magnitude increase in sensitivity to carbon dust particles is possible. This would enable the detector to measure the low levels of dust ( $\sim 5$  ng/cm<sup>2</sup>/shot) produced in NSTX. Results will be presented from both small 12x12 mm and large 50x50 mm detectors, using both carbon and tungsten dust. [1] C.V. Parker et al., J. Nucl. Mater., 363-365 (2007) 1461.

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