

Abstract Submitted
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Advances in Dust Detection and Removal for Tokamaks¹ A. CAM-POS, University of Rochester, C.H. SKINNER, A.L. ROQUEMORE, Princeton Plasma Physics Laboratory, J.O.V. LEISURE, S. WAGNER, Princeton University — Dust diagnostics and removal techniques are vital for the safe operation of next step fusion devices such as ITER. An electrostatic dust detector[1] developed in the laboratory is being applied to NSTX. In the tokamak environment, large particles or fibres can fall on the grid potentially causing a permanent short. We report on the development of a gas puff system that uses helium to clear such particles from the detector. Experiments with varying nozzle designs, backing pressures, puff durations, and exit flow orientations have obtained an optimal configuration that effectively removes particles from a 25 cm² area. Dust removal from next step tokamaks will be required to meet regulatory dust limits. A tripolar grid of fine interdigitated traces has been designed that generates an electrostatic travelling wave for conveying dust particles to a “drain.” First trials have shown particle motion in optical microscope images. [1] C. H. Skinner et al., J. Nucl. Mater., 376 (2008) 29.

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