Abstract Submitted
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Analysis of dust detector response to stainless steel particles[1] P. LANDY, Cornell University, C.H. SKINNER, H. SCHNEIDER, P.P.P.L. — Dust accumulation inside next step fusion devices poses a significant safety concern and dust diagnostics will be needed to assure safe operations. A recently developed electrostatic dust detection device has been successfully demonstrated in the NSTX and Tore Supra tokamaks [1,2] and dust detection in the Large Helical Device (LHD) is planned. Both carbon and stainless steel dust particles have been observed in LHD. The detector's response to carbon particles is well understood from laboratory experiments [3], but to date no data exists on its response to stainless steel particles. This work intends to characterize the response of the electrostatic dust detector to 4 to 8 micron diameter stainless steel particles of size comparable to that found in LHD and compare the sensitivity and waveforms generated by stainless steel dust to carbon dust. Results will be used to guide future experiments in LHD.

[1] C.H. Skinner et al., Rev. Sci Instrum. 81, 10E102 (2010).
[2] H. Roche et al., Phys. Scr., T 145 (2011).
[3] D.P. Boyle et al., J. Nucl. Mater. 390-391,1086 (2009).

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