Abstract Submitted
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First real-time detection of surface dust in a tokamak[1] C.H. SKINNER, L. ROQUEMORE, H.W. KUGEL, R. MARSALA, T. PROVOST, P.P.P.L. — Dust accumulating in the vacuum vessel from plasma surface interactions has important consequences for the operation and safety of next-step devices such as ITER. Local measurements of dust are part of the ITER dust strategy, but to date no real time measurements of dust on internal tokamak surfaces have been reported. We will present the first measurements of dust in the NSTX vessel using an novel electrostatic surface dust detector. A fine grid of interlocking circuit traces was biased to 50 v. Impinging dust particles create a temporary short circuit and the resulting current pulse is recorded by counting electronics. Techniques used to increase the sensitivity to match NSTX dust levels while suppressing electrical pickup will be presented. Results from a separate experiment to gauge the mobilization of dust from ITER-scale castellations will also be reported.

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