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First real-time detection on surface dust detection in tokamaks¹ C.H. SKINNER, L. ROQUEMORE, H.W. KUGEL, P.P.P.L., B. RAIS, Universite de Provence — Dust generated from plasma surface interactions has important consequences for the operation and safety of next-step devices and local measurements of dust are part of the ITER dust strategy. The first real-time measurements of surface dust in the NSTX vessel have been successfully made using an novel electrostatic surface dust detector. Impinging dust particles create a temporary short circuit on fine grid of interlocking circuit traces that is biased to 50 v 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. The detector has been calibrated with both carbon and lithium particles. In a separate experiment a probe with ITER scale castellation gaps was filled with dust particles and exposed to an intentional disruption in NSTX. Results on the mobilization of dust from the castellations will be reported.

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