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Category Number and Subject: 5.6.2. DIII-D Tokamak

[ ] Theory [X] Experiment [ ] Combined/General

Measurements and interpretation of hard x-ray emission from runaway electrons in DIII-D,* A.N. James, E.M. Hollmann, V.A. Izzo, G.R. Tynan, J.H. Yu, *UCSD*; M.E. Austin, *U. Texas-Austin*; N. Commaux, T.C. Jernigan, *ORNL*; N.W. Eidietis, T.E. Evans, D.A. Humphreys, A.W. Hyatt, R.J. La Haye, E.J. Strait, J.C. Wesley, *General Atomics* – The spatial distribution of runaway electron (RE) strikes to the wall during argon pellet initiated rapid shutdown of divertor or limiter plasma discharges in DIII-D is studied using an array of hard x-ray (HXR) scintillators. HXR emission from MeV level REs generated during the argon pellet injection is observed during the thermal quench (TQ) in divertor discharges from REs lost into the divertor. This prompt TQ loss is reduced in limiter discharges, suggesting improved TQ confinement of REs in this configuration. In the plateau phase, toroidally symmetric HXR emission from remaining confined REs is seen. Transient HXR bursts during this time suggest a possible instability. Eventually, abrupt final loss of remaining RE current occurs, with a spatio-temporal evolution that suggests the development of a kink instability.

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