

Abstract Submitted
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Recent Investigations of Runaway Electron (RE) Generation and Transport in DIII-D¹ A.N. JAMES, E.M. HOLLMANN, J.H. YU, G.R. TYNAN, UCSD, N. COMMAUX, T.C. JERNIGAN, ORNL, N.W. EIDIETIS, T.E. EVANS, R.J. LA HAYE, E.J. STRAIT, J.C. WESLEY, GA, C.J. LASNIER, LLNL, M.E. AUSTIN, U. Texas — We generated record RE currents in DIII-D of >500 kA by terminating stationary discharges via frozen Ar pellet injection. The largest measured RE currents evolved from discharges with $q_0 > 0.97$ and $\ell_i > 0.92$. A new scintillator array observed 3 phases of RE escape to the wall: a toroidal band of prompt release to the upper and lower divertors just after the thermal quench, 1 ms later a longer 5-50 ms period where RE drifted upward and escaped via slow diffusion and rapid bursts, and a final rapid strike of remaining RE current on the upper divertor. Visible synchrotron or bremsstrahlung emission appeared on the fast camera during the 2nd phase near machine center and drifted to the upper divertor. The electron cyclotron emission radiometer recorded a ~ 1 ms spike just before the 1st phase radiation burst, and a broader lower intensity emission during the 2nd phase.

¹Work

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