Abstract Submitted
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Dissipation of post-disruption runaway electron plateaus by shattered pellet injection in DIII-D[1] D. SHIRAKI, N. COMMAUX, L.R. BAYLOR, ORNL, C.M. COOPER, ORAU, N.W. EIDIETIS, C. PAZ-SOLDAN, General Atomics, E.M. HOLLMANN, R.A. MOYER, UCSD — Effective runaway electron (RE) mitigation strategies are essential for protecting ITER from the potential damage of a first wall strike. In DIII-D, shattered pellet injection (SPI) with large Ne pellets demonstrates the dissipation of post-disruption RE plateaus by collisions with high-Z impurities, while equivalently sized D_2 pellets lead to a reduction of the impurity content of the background plasma, reducing RE dissipation. Varying the relative quantities of Ne/D_2 in mixed species pellets shows that the effect of D_2 may be dominant in determining the RE/pellet interaction. Compared with injection of the same quantity of Ne by massive gas injection, SPI achieves a similar initial RE current decay rate, but residual RE current remains after SPI. This may be due to the effects of a small quantity of D_2 (used as a shell for firing of the Ne pellets) displacing high-Z impurities. These results will help guide the optimization of injection schemes and pellet compositions for the RE mitigation system in ITER.

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