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Transport of shattered pellet material during fast shutdown of DIII-D plasmas[1] D. SHIRAKI, J.L. HERFINDAL, L.R. BAYLOR, ORNL, N.W. EIDIETIS, GA, E.M. HOLLMANN, R.A. MOYER, UCSD, C.J. LASNIER, LLNL — A second shattered pellet injection (SPI) system has been installed on DIII-D, allowing new measurements of radial and toroidal transport of injected impurities during fast shutdown of the plasma. Toroidally separated injections from the two systems vary the impurity profiles and resulting radiative heat loads, relative to available disruption diagnostics. Infrared imaging and radiometry are used to compare heat loads near the injection port with those located toroidally away, in order to quantify radiation asymmetries. Radial transport mechanisms are studied by directing the SPI trajectory away from the magnetic axis in order to reduce the ballistic transport of solid pellet fragments to the core, which more closely matches the ITER injection geometry. The assimilation of this edge deposited SPI is compared to SPI directed towards the core, and also with massive gas injection whose assimilation is strongly dependent on thermal quench MHD mixing.

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