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Studies of Runaway Electron Confinement in MHD Disruption Simulations,* V.A. Izzo, E.M. Hollmann, A. James, *UCSD*; D.G. Whyte, G. Olynyk, *MIT*; L.L. Lao, *GA* — Formation of a runaway electron beam during an ITER disruption is a major concern for machine survival, particularly because the avalanche growth of a seed population will be many orders of magnitude larger than in present devices. Enhanced fast-electron losses due to stochastic fields produced during the disruption, or from applied non-symmetric fields, can combat avalanche growth. The confinement of fast electrons is studied in the context of MHD simulations using a newly developed capability in the NIMROD code to track single particle orbits as the magnetic fields evolve. Macroscopic drift-orbit displacements associated with highly relativistic electrons play an important role in confinement by averaging over perturbing fields during a poloidal transit, thus allowing good confinement in the presence of stochasticity. Verification of the model for a small number of electrons compares the orbits with and without drift terms directly. Confinement of fast electrons during a gas-jet-induced disruption on Alcator C-Mod, and during a controlled error field ramp on DIII-D are presented.

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