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Evaluation of Runaway Electrons with CQL3D/NIMROD and Validation with Measurements in DIII-D Tokamak[1] M. CHOI, IMSOL-X, V.A. IZZO, UCSD, DIII-D TEAM — During plasma disruptions in tokamaks, fast current quench may produce a significant current of runaway electrons (REs) in the plasma. REs lost to the first wall can result in local power dissipations, which can potentially cause localized melting of first wall components. In DIII-D experiments, RE currents were measured from negligible to over 500 kA during Ar pellet injections. However, during Ne gas injections, they were not observed [1]. To understand these observations, the bounce-averaged Fokker-Planck code CQL3D is coupled with the nonlinear MHD code NIMROD. These combined simulation tools enable the evaluation of plasma current profile evolution self-consistently with the evolution of the generation/loss of RE currents during the termination phase of disruptions. In this work, we report validation results of CQL3D/NIMROD with measurements for a set of DIII-D discharges with Ar pellet injections and Ne gas injections.

[1] V.A. Izzo, et al., Plasma Phys. Control. Fusion **54** (2012) 095002.

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