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Comparisons of Runaway Electron Production in DIII–D with the CQL3D Model[1] R.W. HARVEY, CompX, V.S. CHAN, S.C. CHIU, T.E. EVANS, General Atomics, D.G. WHYTE, University of California, San Diego, M.N. ROSENBLUTH, ITER JCT, San Diego — The time-dependent CQL3D relativistic, bounce-averaged Fokker-Planck code is well suited to modeling the electron runaway generation by "tail slideaway" and "knockon" processes associated with rapid plasma temperature drop as occurs during plasma disruption and pellet injection. "Rapid temperure drop" means in a time short compared to the resistive time thus leading to large inductive electric field; and also short compared to tail electron slowing down time thereby providing a significant number of high velocity electrons. The tail electrons find themselves beyond the critical velocity for runaway. During DIII–D pellet injection experiments, in the plasma interior we calculate nearly 100 percent of the plasma current is transferred to runaway electrons by tail slideaway. This effect diminishes towards the plasma edge, where the knockon process can become dominant on a longer time scale. These computational results will be benchmarked against the experimental results.

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