Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Development of non-axisymmetric structures during MHD disruptions in tokamak plasmas ROBERTO PACCAGNELLA, Consorzio RFX, Associazione Euratom-ENEA sulla Fusione, Padova, Italy, H.R. STRAUSS, Institute for Mathematical Sciences, New York University, New York, USA, JOSHUA BRESLAU, Princeton University Plasma Physics Laboratory, Princeton, USA — Recently the problem of 3D simulations of vertical displacement events (VDEs) and disruptions in tokamak plasmas has been addressed [R.Paccagnella, H. Strauss, J. Breslau, Nucl. Fusion 49 (2009) 035003] by using the M3D code, in the relatively "benign" cases where the on-axis q is above 1 and vertical plasma movement is mainly driven by a resistive wall mode (RWM) on the time scale of the magnetic field penetration of the conducting wall. In this paper we extend the previous simulations to cases in which the on-axis q is below 1 and the driving mode is an external resistive kink able to drive a reconnection process in the central plasma region. In these cases the disruptions are faster and evolve on the Alfvén time scale. Amplitudes and asymmetries of the halo currents and forces at the wall are calculated in both cases. Comparisons with tokamak experimental data and predictions for ITER are also given.

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Date submitted: 15 Jul 2009 Electronic form version 1.4