Abstract Submitted
for the APR09 Meeting of
The American Physical Society

Wall Force in Tokamak Disruptions[1] HENRY STRAUSS, HRS Fusion, ROBERTO PACCAGNELLA, Consorzio RFX, JOSHUA BRESLAU, PPPL — Disruptions in tokamaks produce forces on conducting structures surrounding a tokamak. These forces are a serious concern for the operation of ITER, especially the toroidally asymmetric forces. We continue numerical resistive MHD studies of disruptions reported previously [1]. The model includes a resistive wall in order to allow the magnetic field to penetrate. We carry out numerical simulations with the M3D [2] code, in which the disruption consists of a vertical displacement event (VDE) combined with an external kink, resistive wall mode, or a pressure driven instability. The radial force exerted by the magnetic field on the wall is proportional to the magnetic pressure difference across the wall. Studies are being carried out to determine how the toroidally asymmetric wall force is related to other features of the disruption, such as the toroidal peaking factor (TPF) and halo current fraction.
[1] R. Paccagnella, H. Strauss, J. Breslau, submitted to Nucl. Fusion (2008); B.A.P.S. 53, CP6.00067 (2008)
[2] W. Park, E. V. Belova, G. Y. Fu, X. Z. Tang, H. R. Strauss, L. E. Sugiyama, Phys. Plasmas 6, 1796 (1999)

[1]Supported by USDOE

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Date submitted: 08 Jan 2009 Electronic form version 1.4