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Wall forces produced during ITER disruptions[1] H.R. STRAUSS, HRS Fusion, R. PACCAGNELLA, Consorzio RFX and Istituto Gas Ionizzati (CNR), J. BRESLAU, PPPL — Nonlinear simulations with the M3D code [1] are performed of disruptions produced by a vertical displacement event (VDE) and a kink mode. The toroidally symmetric and asymmetric wall forces produced during a disruption are calculated in ITER. Expressions are derived for the wall force, including the sideways force, using a thin conducting wall model. The dependence of wall force on the kink growth rate and the wall penetration time is obtained. The largest force occurs when the growth rate equals the inverse wall penetration time. A theory is developed of the wall force produced by kink modes. The theory is in qualitative agreement with the simulations and JET experiments. The variation of the horizontal force with wall resistivity offers an important opportunity to ameliorate the sideways force of disruptions. If the wall can be made more conducting, it is possible to reduce the wall force by a large factor. The JET experiment operates in a regime with large halo currents [2] relative to eddy currents, which may overestimate the forces on a better conducting wall.

[1] W. Park *et al.*, Phys. Plasmas **6**, 1796 (1999).
[2] V. Riccardo *et al.*, Plasma Phys. Control. Fusion **46**, 925 (2004)

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