

Abstract Submitted  
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**Sideways wall force and thermal quench in JET disruptions<sup>1</sup>**

HENRY STRAUSS, HRS Fusion, STEPHEN JARDIN, PPPL, JET COLLABORATION — Two critical issues in tokamak disruptions are the asymmetric wall force produced during the current quench (CQ) and the thermal load during the thermal quench (TQ). Simulations of asymmetric wall force during disruptions with M3D were consistent with JET data. These results have been extended with M3D-C1 simulations and compared with additional JET data. The results confirm decrease of asymmetric wall force with CQ time, when the CQ time is less than the resistive wall penetration time. The asymmetric wall force and impulse were calculated with the Noll formula for shots in the JET ILW 2011-2016 disruption database, and compared with simulations. It is shown that vertical displacement events (VDE) scrape off plasma and cause  $q$  to reach unity, destabilizing (1,1) kink mode which causes the asymmetric wall force. Recent simulations of thermal quench have been carried out. The TQ has two phases: a rapid broadening of the temperature profile, and a slow loss of heat from the plasma. The slow phase can depend on wall resistivity. Magnetic perturbations at the plasma edge can increase in magnitude, increasing parallel thermal conduction and thermal load from disruptions. A longer resistive wall time reduces this effect.

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Henry Strauss  
HRS Fusion

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