

**Abstract Submitted for the 52nd Annual Meeting
Division of Plasma Physics
November 8–12, 2010, Chicago, Illinois**

Category Number and Subject: 5.6.2 DIII-D tokamak

Theory Experiment

Rapid Shutdown Methods for Runaway Electron Suppression by Large Shattered Pellets and Massive Gas Injection in DIII-D,* T.C. Jernigan, N. Commaux, L.R. Baylor, *ORNL*; N.W. Eidietis, T.E. Evans, D.A. Humphreys, V.A. Izzo, P.B. Parks, J.C. Wesley, *GA*; E.M. Hollmann, A.N. James, J.H. Yu, *UCSD* — Massive gas injection (MGI) has been shown to significantly reduce both the heat loads and forces transmitted to the tokamak first wall. However, MGI has been unable to approach the n_e required to prevent runaway electron (RE) generation by the avalanche process. Large shattered pellet injection (SPI) has been developed to overcome this limitation in MGI. Application of SPI and MGI techniques using D_2 in DIII-D will be compared. Extensions to neon will be discussed. Other techniques for RE suppression explored in DIII-D, such as large shell pellet injection, very high intensity gas injection, and external magnetic perturbations, will be discussed along with key RE diagnostics used.

*Work supported in part by the US DOE under DE-AC02-00OR22725, DE-FC02-04ER54698, DE-FG02-07ER54917, and DE-FG02-07ER54912.