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Category Number and Subject: DIII-D

Theory      Experiment

**Comparison of ELMs in Hydrogen and Deuterium Discharges in DIII-D,\*** C.J. Lasnier, M.E. Fenstermacher, M. Groth, *Lawrence Livermore National Laboratory*, T.E. Evans, R.J. Groebner, A.W. Leonard, T.H. Osborne, *General Atomics*, J.G. Watkins, *Sandia National Laboratories*, M.W. Jakubowski, *Max-Planck Institut fur Plasmaphysik* – In this paper we compare the behavior of ELMs in similar hydrogen and deuterium discharges in DIII-D. Discharges were run with deuterium fill gas and deuterium neutral beams, and other discharges with hydrogen fill and hydrogen neutral beams. We compare divertor heat flux profile widths, in-out ratios of divertor heat flux profile width and peak heat flux, ELM frequency, energy loss per ELM, and difference of propagation time of ELM heat pulses to inner and outer divertors. The part of the heat flux carried by ions along field lines at the ion sound speed should be affected by the change in ion mass. We also examine the toroidal symmetry of divertor heat flux during ELMS by comparing thermography at two toroidal locations in hydrogen and deuterium discharges.

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