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Sorting Category: 5.1.1.2 (Experimental)

Fast Wave Electron Heating in ELMing H-mode **Discharges**¹ J.S. DEGRASSIE, H. IKEZI, L.L. LAO, Y.R. LIN-LIU, C.C. PETTY, R.I. PINSKER, R. PRATER, General Atomics, F.W. BAITY, M. MURAKAMI, Oak Ridge National Laboratory — Fast wave electron heating (FWEH) experiments on DIII-D have established the effectiveness of this heating method in L-mode and negative central shear discharges, as well as central current driven by the fast waves.^{2,3} Recently, experiments have begun on the application of fast wave power to ELMing H-mode discharges. DIII-D transmission systems design provides a natural passive buffer between the rf transmitters and the dynamic plasma load presented by a vigorously ELMing discharge, allowing effective time averaged power coupling. Over 2.5 MW of fast wave power has been coupled to such discharges for pulses up to 1.7 s. For comparison, 3.6 MW has been coupled to L-mode discharges. Modulation of the rf power allows a measurement of the power deposition profile for FWEH. Preliminary analysis reveals that over 50% of the coupled power is deposited in the interior of the discharge, a similar accountability as seen in L-mode cases. Analyses of these discharges will be presented, describing the level of FWEH and current drive.

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Special instructions: P-2-4

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