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Fast Wave Current Drive and Non-Thermal Effects in Neutral Beam Heated Plasmas¹ C.C. PETTY, R.I. PINSKER, J.S. DEGRASSIE, T.C. LUCE, R. PRATER, General Atomics, F.W. BAITY, M. MURAKAMI, Oak Ridge National Laboratory, E. FREDRICKSON, Princeton Plasma Physics Laboratory, W.W. HEIDBRINK, University of California, Irvine — Recent fast wave experiments in neutral beam heated plasmas on DIII-D have studied current drive in H-mode plasmas and sawtooth stabilization in L-mode plasmas. The FWCD efficiency in H-mode plasmas was inversely correlated with the ELM frequency, such that plasmas with grassy ELMs had the lowest values while plasmas with infrequent ELMs had the highest values. The fast wave electron heating had the same dependence as the current drive, indicating that poor absorption caused the reduced FWCD efficiency. In other experiments, sawtooth stabilization was observed with > 1 MW of fast wave power at 60 MHz when combined with 2.5 MW of beam injection. Various diagnostics support the hypothesis that the stabilization was due to an interaction between fast waves and injected beam ions at the 4th harmonic of the deuterium cyclotron frequency.

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- Prefer Oral Session
 Prefer Poster Session

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