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**Absorption of Fast Wave Power By Energetic Ions During FWCD in DIII-D,<sup>1</sup>** E.F. JAEGER, M. MURAKAMI, L.A. BERRY, D.B. BATCHELOR, M.D. CARTER, F.W. BAITY, Oak Ridge National Laboratory, S.C. CHIU, J.S. DEGRASSIE, C.B. FOREST, C.C. PETTY, R.I. PINSKER, R. PRATER, General Atomics — Fast wave current drive can be adversely affected by parasitic absorption processes which compete with direct electron heating for the RF power. One such competing absorption process is high harmonic resonant ion absorption by energetic deuterium ions which are used to heat the plasma during neutral beam injection. Harmonic resonance numbers for these ions vary between about 3 and 9 in DIII-D depending on the toroidal magnetic field and RF frequency. In this study, the toroidal magnetic field is varied between about 1.4 T and 2.1 T at the machine center to study the effect of energetic ion absorption and plasma beta on electron heating and current drive. Results are compared to theoretical calculations with the PICES full-wave ICRF code. The energetic ion component is treated as a Maxwellian tail with mean energy and density derived from fast ion slowing down calculations from the ONETWO and TRANSP codes.

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