

**Abstract Submitted for the Forty-Eighth Annual Meeting
Division of Plasma Physics
October 30th-November 3, 2006, Philadelphia, Pennsylvania**

Category Number and Subject: 5.6.2. DIII-D Tokamak

☐ Theory ☒ Experiment

Fast-Ion Profiles During Ion Cyclotron Heating,* E. Ruskov, W.W. Heidbrink, Y. Luo, *U. California-Irvine*, M. Choi, R.I. Pinsky, *General Atomics* – Fast wave heating at the 4th-8th harmonic is combined with neutral beam injection. For 60 MHz heating at the 4th-6th harmonic, an energetic deuterium tail is observed by the fast-ion D_α (FIDA) diagnostic [1,2]. FIDA profiles are compared with the fast-ion profiles inferred from the equilibrium, as well as neutral particle data. Under some conditions, enhanced losses of fast ions at the vessel wall occurs during the rf. The fast-ion tail is largest near the resonance layer. For 116 MHz heating at the 8th harmonic, little evidence of a fast-ion tail is observed, even in higher density plasmas where fast-ion absorption was originally predicted. The FIDA spectra and profiles for cases with and without fast-ion heating are compared with calculations of the expected fast-ion acceleration.

- [1] W.W. Heidbrink *et al.*, Plasma Phys. Control. Fusion **46** (2004) 1855.
- [2] Y. Luo *et al.*, Rev. Sci. Instrum. **75** (2004) 3468.

*Work supported by the U.S. DOE under SC-G903402 and DE-FC02-04ER54698.