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Fast-Ion Profiles During Ion Cyclotron Heating,¹ E. RUSKOV, W.W. HEIDBRINK, Y. LUO, U. California-Irvine, M. CHOI, R.I. PINSKER, 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.

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