

Abstract Submitted
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Sorting Category: 5.1.1.2 (experimental)

Fast-Ion Behavior During High-Harmonic Ion Cyclotron Heating¹ W.W. HEIDBRINK, University of California, Irvine, C.C. PETTY, R.I. PINSKER, General Atomics — Combined neutral beam injection and fast wave heating at the fourth cyclotron harmonic of the deuterium beam ions produces a high-energy ion tail under certain conditions on DIII-D. For these experiments, the beam power is 2.7 MW at 80 keV, while the coupled rf power is ~ 1 MW at 60 MHz. Four correlated observations suggest tail formation. First, the sawtooth period more than doubles. Second, the neutron emission increases 50%. Changes in Coulomb scattering only account for an increase of $\sim 15\%$, so presumably the additional increase is caused by cyclotron acceleration of the beam ions. Third, active charge exchange measurements indicate an increase in the number of 60–70 kV perpendicular ions near the resonance layer. Fourth, Alfvén instabilities between 250–500 kHz appear.

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- Prefer Oral Session
 Prefer Poster Session

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Special instructions: DIII-D Poster Session II (divertor physics, disruptions, RF, & diagnostics), immediately following Gray

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