

Abstract Submitted  
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**Ions lost on their first orbit can impact Alfvén eigenmode stability and experience nonlinear wave-particle interactions**<sup>1</sup> W.W. HEIDBRINK, E.A.D. PERSICO, UCI, XI CHEN, D.C. PACE, M.A. VAN ZEELAND, GA, G.Y. FU, PPPL — Some neutral-beam ions are deflected onto loss orbits by Alfvén eigenmodes on their first bounce orbit and detected by a fast-ion loss detector (FILD). The resonance condition for these ions differs from the usual resonance condition for a confined fast ion. Estimates indicate that particles on single-pass loss orbits transfer enough energy to the wave to alter mode stability. When these ions interact with more than one mode, oscillations in the FILD signal often appear at the sum and difference frequencies of the independent modes. A wide variety of FILD spectra are observed.

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