

Abstract Submitted
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Energetic Ion Losses in the Alcator C-Mod Tokamak¹ D.C. PACE, ORISE, R.S. GRANETZ, A. BADER, R.R. PARKER, R. VIEIRA, S.J. WUKITCH, MIT, D.S. DARROW, S.J. ZWEBEN, PPPL — A scintillator-based fast ion loss detector (FILD) is presently being commissioned on the Alcator C-Mod tokamak to resolve the energy and pitch angle of energetic ions that are lost from the plasma due to interactions with MHD modes, edge localized modes, and ion cyclotron resonance heating (ICRH) injection. Energetic ion populations are generated by applying ICRH in the minority heating regime, producing tail energies up to 2 MeV and driving a variety of Alfvén eigenmodes. The 2 MHz sampling rate of the detector allows for the identification of convective losses across the range of encountered Alfvénic frequencies. A comprehensive design study optimized the FILD to overlap its observed ion phase space with that of the compact neutral particle analyzer array that measures radial energy and density profiles of confined ICRH tail ions. Initial results from this diagnostic system will be presented in the context of the extensive C-Mod ICRH experiment and simulation/modeling effort.

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