

Abstract Submitted
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Energetic Ion Losses During Edge Localized Modes in DIII-D¹

B. LEE, UIUC, D.C. PACE, X. CHEN, GA — Energetic ions lost from tokamak plasmas due to perturbations associated with edge localized modes (ELMs, periodic plasma ejections occurring when tokamaks operate in the high confinement regime known as H-mode) may contribute a damaging heat load to the vessel walls. Two scintillator-based fast ion loss detectors (FILD) located on the outer wall of the DIII-D tokamak measure the energy and pitch angle of energetic ions ejected from the bulk plasma. A large data set of ELMs and energetic ion losses has been compiled from many experiments featuring neutral beam heated H-mode plasmas (beam injection is the source of the energetic ions). This data set will be analyzed to identify the energetic ion loss activity and other plasma parameters before, during, and after ELMs. Initial observations identify cases in which energetic ion losses appear as few millisecond precursors to ELMs. An assessment of loss properties and the conditions under which ions are expelled in advance of the ELMs is intended to provide guidance for future studies in which the wall heat load resulting from ELM-induced energetic ion losses will be investigated.

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P. Gohil
GA

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