

# Scintillator-Based Diagnostic for Fast Ion Loss Measurements on DIII-D

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A new scintillator-based fast ion loss diagnostic (FILD) has been installed on DIII-D with the time response ( $>100$  kHz) needed to study energetic ion loss induced by Alfvén eigenmodes and other MHD instabilities. Based on the design used on ASDEX Upgrade, the diagnostic measures the pitch angle and gyroradius of the ion losses based on the position of the ions striking the 2D scintillator. For fast time response measurements, a beam splitter and fiber optics couple a portion of the scintillator light to a photomultiplier array. Reverse orbit following techniques trace the lost ions to their possible origin within the plasma [1]. Initial DIII-D results showing prompt losses and energetic ion loss due to MHD instabilities will be discussed. This work was supported in part by the US DOE under DE-FC02-04ER54698 and SC-G903402.

[1] D.C. Pace, et al., these proceedings.