

Abstract Submitted
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Proposal for the Study of LH Wave Propagation Using Reflectometry on Alcator C-Mod¹ A. DOMINGUEZ, P. BONOLI, E. MARMAR, R. PARKER, S. SHIRAIWA, G. WALLACE, MIT PSFC TEAM — The Alcator C-Mod tokamak currently uses lower hybrid range of frequency (LHRF) waves as an auxiliary current drive and heating source. Measuring the radial penetration of these waves and comparing the results to theory and simulation is important for the understanding of LHRF wave physics in tokamaks. The use of O-mode reflectometry is proposed as an experimental tool for this purpose. Initial proof of principle experiments investigating the viability of this proposal were carried out during the 2008 campaign in which high frequency low power waves (54.8GHz at ~5mW) were injected into the low field side midplane of the plasma in O-mode propagation during LH operation. The reflected signal is found to have frequency components consistent with modes caused by the modulation of the reflectometry cutoff density layer by the LHRF wave. Parametric decay instability (PDI) components can also be seen in the reflected waves. In this poster, the results of initial proof of principle experiments carried out on the Alcator C-Mod are presented as well as a proposal to fully implement the technique for more extensive measurements.

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