

Abstract Submitted
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The detection of lower hybrid (LH) waves using reflectometry in Alcator C-Mod¹ S.G. BAEK, R.R. PARKER, PSFC, MIT, S. SHIRAIWA, G. WALLACE, A. DOMINGUEZ, P.T. BONOLI, E.S. MARMAR, PSFC, MIT, G.J. KRAMER, PPPL — The development of a scattering diagnostic using an O-mode reflectometer system at 60 and 75 GHz to study LH waves in the scrape off layer of Alcator C-Mod is presented. The direct measurement of LH wave fields can help us to better understand their propagation and absorption of LH waves, especially in high density plasma where the penetration is limited. To assess the use of the scattering interaction as a diagnostic tool, coupling coefficients in a 1D plasma model are calculated. Based on this model, the high frequency stage of both O-mode reflectometry channels have been modified and new power detection stages have been added. The width and the amplitude of the scattered waves can be extracted from these measurements. The initial measurement of scattered signals suggests that the ray paths of lower hybrid waves may be different from the ray paths predicted by the ray tracing code, GENRAY. The possible role of scattering of lower hybrid waves from low frequency density fluctuations in modifying the ray paths is studied using GENRAY/CQL3D.

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