

Abstract Submitted
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Investigation of Lower Hybrid Wave Interaction with the Edge Plasma in WEST through Electric Field Vector Measurements¹ E.H. MARTIN, C. LAU, C.C. KLEPPER, ORNL, M. GONICHE, CEA IRFM, G.M. WALLACE, S. SHIRAIWA, MIT PSFC, P. LOTTE, J-Y. PASCAL, CEA IRFM — The WEST tokamak's main mission requires it to establish and sustain long pulse H-mode operation in an all-W wall environment using only RF waves for heating and current drive. To drive plasma current, two lower hybrid (LH) launchers are installed and operate at 3.7 GHz with a combined power of up to 7 MW for 1000 s. A new experimental arrangement on WEST aims to measure the spatially resolved LH wave electric field vector, \mathbf{E}_{LH} , in front of one of these launchers. The main motivation is to improve understanding of LH wave interaction with the scrape off layer (SOL) plasma. The experimental measurement of \mathbf{E}_{LH} is obtained by fitting the Schrödinger equation to the σ -polarized (\perp to \mathbf{B}) D_β spectral line profile. The D_β spectrum are acquired passively from optical emission observed near the lateral protection limiters. The measured \mathbf{E}_{LH} is then systematically compared to simulations using a 3D full-wave COMSOL model. Details of the experimental arrangement will be described and initial \mathbf{E}_{LH} results will be presented. Future work focused on studying \mathbf{E}_{LH} as a function of LH power, confinement mode, Greenwald fraction, and magnetic geometry will be discussed.

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