

Abstract Submitted
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Localized Measurements of ECCD Using MSE Spectroscopy on DIII-D¹ C.C. PETTY, Y.R. LIN-LIU, T.C. LUCE, R. PRATER, H.E. ST. JOHN, General Atomics, W.R. FOX, Princeton University, M.A. MAKOWSKI, Lawrence Livermore National Laboratory — Electron cyclotron current drive (ECCD) is a valuable tool for current profile control because the generation of localized current at selected radii is easily controlled. Since nearly pure X-mode is required to achieve highly localized deposition, the difference in wave refraction between X-mode and O-mode is used to identify and evaluate the unwanted O-mode component. Two different analysis methods are utilized to verify the localization of the ECCD. First, the plasma current density is separated into inductive and non-inductive components from the evolution of the poloidal magnetic flux; this requires magnetic equilibrium reconstructions with excellent spatial resolution. Second, the measured pitch angles from motional Stark effect (MSE) spectroscopy are compared to simulations of the expected MSE response to localized ECCD. This analysis shows that the width of the ECCD profile is in agreement with theory. The effect of the H-mode edge on the ECCD efficiency and localization will be discussed.

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Prefer Oral Session
 Prefer Poster Session

C.C. Petty
petty@fusion.gat.com
General Atomics

Special instructions: Current Drive - Wave Particle, immediately following LL Lao

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