Abstract Submitted
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ICRF mode conversion flow drive study with enhanced wave detection by phase contrast imaging on Alcator C-Mod[1] Y. LIN, E. EDLUND, P. ENNEVER, A.E. HUBBARD, M. PORKOLAB, J.E. RICE, S.J. WUKITCH, MIT Plasma Science and Fusion Center — Applying ICRF power in D(He3) plasmas has been found to drive plasma rotation in the mode conversion (MC) regime at a moderate He3 level. With the help of ICRF wave simulation, MC induced symmetry-breaking in momentum distribution is thought to be the likely cause of the observed flow drive effect. However, the detailed mechanism of how the waves generate rotation is unclear due to the involvement of three waves in the MC region: the MC ion Bernstein wave, MC ion cyclotron wave, and fast wave. Recently, the phase contrast imaging system on Alcator C-Mod has been upgraded, and it has been shown to have much higher sensitivity in detecting RF waves. Further MC flow drive experiments at 8 T will be carried out in the 2015 campaign. We will study the dependence of the rotation vs. the measured wave amplitude, k spectrum, location, and relative amplitude among the three waves. This study will shed lights on the flow drive mechanism and help assess the roles played by the different waves in the process.

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