

Abstract Submitted
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Recent ICRF results on Alcator C-Mod¹ YIJUN LIN, S. WUKITCH, A. BINUS, A. PARISOT, M. REINKE, MIT, Plasma Science and Fusion Center — Alcator C-Mod utilizes 8 MW ICRF source power in the ion cyclotron range of frequencies (ICRF) to heat plasma in the D(H) or D(He3) minority regimes. The power is injected via two 2-strap and one 4-strap antennas. Recently, we have installed a fast ferrite tuning (FFT) system on one of the 2-strap antennas. The FFT system was shown to maintain the transmitter matchings to antenna loading in a variety of plasmas, L-mode, H-mode, ELMs and pellet injection, with power reflection less than 3%. It can handle forward RF power up to 0.9 MW in typical H-mode plasmas. To understand the role ICRF sheaths play in impurity penetration, discharges with different magnetic topologies will be compared and presented. We will also report on experiments where sawtooth control in the presence of energetic ions is performed utilizing mode conversion current drive. For central seed current in advanced tokamak discharges, fast wave heating and current drive is a candidate scenario and modeling and initial experimental investigations will be presented. Finally, new modeling and preliminary experimental result on the synergy between the mode converted IBW and lower hybrid current drive will also be presented.

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