

Abstract Submitted
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Stimulation of MHD Modes in Alcator C-Mod¹ T. GOLFINOPOULOS, R. GRANETZ, B. LABOMBARD, Y. LIN, R.R. PARKER, J. SEARS, S.J. WUKITCH, MIT Plasma Science and Fusion Center — Active MHD (AMHD) spectroscopy involves stimulating MHD modes by external means to study the modes or diagnose the plasma. In many AMHD experiments, drive frequency is swept across a 100 – 200 kHz range in which modes are expected; this allows for robust techniques to detect resonant poles in the presence of direct pickup from the driver. However, there is flexibility in the drive mechanism. At Alcator, we have employed a parametric excitation method, amplitude-modulating the ICRF wave (80 MHz) with envelope signals in the AE frequency range (100's kHz). This builds off the ICRF beat technique used in JET in 1996 and ASDEX Upgrade in 2006, but is unique in its use of a single antenna, improving coherence. An advantage of this approach is its ability to couple to the plasma core. It also has high input power, though efficiency is limited by the Manley-Rowe relations. In initial experiments, we excited weak, stable modes in the toroidal Alfvén eigenmode band gap. We plan to explore this and other methods for coupling to various MHD-like modes, especially C-Mod's Quasi Coherent mode.

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