Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Study of Plasma Rotation by Modulating ICRF Power on Alcator C-Mod[1] CHI GAO, JOHN RICE, MATTHEW REINKE, YURI PODPALY, MIT Plasma Science and Fusion Center, LUIS DELGADO-APARICIO, Princeton Plasma Physics Laboratory, YIJUN LIN, MIT Plasma Science and Fusion Center, AND ALCATOR C-MOD TEAM — X-ray emission intensity and toroidal rotation velocity profiles are studied with modulated ICRF heating using high resolution X-ray spectometers and analysis tools that provide spatially- resolved intensity, ion-temperature, and rotation profiles. These profiles respond to the power modulation with different behaviors under plasma current and magnetic field scans. Preliminary analysis shows that modulated intrinsic rotation scales with modulated stored energy ($\sim$1 km/s·kJ). Fourier analysis indicates the rotation propagates from the edge to the core. Further analysis will be done on the relation between local plasma energy and intrinsic rotation to separate local and non-local effects of stored energy on intrinsic rotation. A linear acceleration term associated with the toroidal rotation velocity is observed in ICRF-modulated L mode discharges, which we will try to relate to the diffusion and convection terms of momentum flux.

[1]Supported by USDoE award DE-FC02-99ER54512.

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Date submitted: 19 Jul 2011 Electronic form version 1.4