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The Role of Plasma Rotation in C-Mod Internal Transport Barriers[1] C.L. FIORE, D.R. ERNST, J.E. RICE, Y. PODPALY, M.L. REINKE, M.J. GREENWALD, J.W. HUGHES, Y. MA, MIT-PSFC, I.O. BESPAMYATNOV, W.L. ROWAN, FRC-UT Austin — ITBs in Alcator C-Mod featuring highly peaked density and pressure profiles are induced by injecting ICRF power with the second harmonic of the resonant frequency for minority hydrogen off-axis at the plasma half radius. These ITBs are formed in the absence of particle or momentum injection, and with monotonic q profiles with $q_{min} < 1$. In C-Mod a strong co-current toroidal rotation, peaked on axis, develops after the transition to H-mode. If an ITB forms, this rotation decreases in the center of the plasma and forms a well, and often reverses direction in the core. This indicates that there is a strong EXB shearing rate in the region where the foot in the ITB density profile is observed. Preliminary gyrokinetic analyses indicate that this shearing rate is comparable to the ion temperature gradient mode (ITG) growth rate at this location and may be responsible for stabilizing the turbulence. Gyrokinetic analyses of recent experimental data obtained from a complete scan of the ICRF resonance position across the entire C-Mod plasma will be presented.

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