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Search for Correlation Between Plasma Rotation and Electron Temperature Gradient Scale Length in LOC/SOC Transition at Alcator C-Mod[1] SAEID HOUSHMANDYAR, WILLIAM L. ROWAN, PERRY E. PHILLIPS, The University of Texas at Austin, JOHN R. WALK, JOHN E. RICE, PSFC, MIT — Understanding the mechanism governing the linear ohmic confinement (LOC) and the transition to saturated ohmic confinement (SOC) has long been a focus of tokamak research. It is commonly accepted that at low density, the confinement is dominated by electron-scale turbulence while at high density, the turbulence is dominated by ion temperature gradient. At Alcator C-Mod, the core rotation reversal was shown to be consistent with this *ansatz* [Rice *et al*, Nucl. Fusion **53**, 033004 (2013)]. However a recent study at AUG suggests that the intrinsic rotation behavior is rather determined by local plasma parameters regardless of the heating method or the confinement regime [McDermott *et al.*, Nucl. Fusion **54**, 043009 (2014)]. Here, we follow this idea and search for dependence of intrinsic rotation on electron temperature gradient scale length, a quantity with a pivotal role in plasma transport. The high-resolution (1 μs, 7mm) electron cyclotron emission diagnostic at C-Mod (FRCECE) coupled with the B_T jog technique allows direct L_{Te} measurements. In the B_T jog technique, a 1.5% change in the toroidal magnetic field shifts the viewing volume of the ECE by $\sim$ 1 cm, and the ratio of the average of the signal to the change in the signal during its ramp-up yields L_{Te}.

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