

Abstract Submitted
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Localized Temperature Scale Length Measurements in Alcator C-Mod With Central RF Heating¹ PERRY PHILLIPS, KENNETH GENTLE, WILLIAM ROWAN, Fusion Research Center, Univ. of Texas — The electron temperature scale length $L_{T_e} = T_e/\nabla T_e$ can be measured locally using ECE and small $\Delta B/B \approx 1\%$ changes in toroidal field. These measurements are extremely useful because they have high accuracy, are independent of the ECE calibration and they can have high spatial resolution. Alcator C-Mod has the ability to rapidly change the toroidal field to allow these measurements. The heterodyne ECE system on Alcator C-Mod has 32 closely spaced channels ($\Delta R \approx 7mm$) allowing very high spatially resolved temperature and L_{T_e} profiles. The experiments were conducted with central RF heating that allowed variation of the heat flux in the confinement region. This heat flux may then be compared to the changes in the L_{T_e} as the RF power is varied. L_{T_e} is a key parameter in investigation of heat transport and the role of a turbulence threshold above a critical gradient that results in profile stiffness. Results will be presented in this poster.

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