

Abstract Submitted
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Density and Temperature Fluctuations in on Alcator C-Mod Plasmas with Peaked Density Profiles¹ P.E. PHILLIPS, W.L. ROWAN, M.B. SAMPSELL, R.B. BRAVENEC, Fusion Research Center, Univ. of Texas, Austin TX 78712, A.G. LYNN, Univ. of New Mexico, NM 87131, N. BASSE, B. BOSE, E.M. EDLUND, C. FIORE, A. HUBBARD, L. LIN, M. PORKOLAB, E.S. MARMAR, S.J. WUKITCH, PSFC, MIT Cambridge MA 02139 — Core density and temperature fluctuations in plasmas with peaked density profiles are observed with a heterodyne electron-cyclotron-emission (ECE) system in the Alcator C-Mod tokamak. ECE systems typically measure electron temperature only; this ECE system is also able to detect density fluctuations in certain cases due to its oblique viewing angle and refractive effects as the densities near cut-off. The diagnostic is unique in that the signal fluctuations are an amplified version of the density fluctuations. The peaked density profiles are a result of internal transport barriers (ITB's) generated by two different methods: off-axis ion cyclotron resonance heating (ICRH) and lithium pellet injection. The principle results described here are the first measurements of localized core fluctuations in the Alcator C-Mod ITB and of fluctuations associated with the quench of the density rise due to the ITB.

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