Abstract Submitted
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Studies of Turbulence and Transport in Alcator C-Mod Ohmic Plasmas with Phase Contrast Imaging and Comparisons with GYRO[1] L. LIN, M. PORKOLAB, E.M. EDLUND, J.C. ROST, M. GREENWALD, MIT PSFC, D. MIKKELSEN, PPPL — Recent results from C-Mod ohmic plasmas using phase contrast imaging (PCI)[2] will be presented. The experiments cover the "neo-Alcator" (linear confinement time scaling with density) to the "saturated ohmic" regime.[3] We have also compared measured turbulence with GYRO[4] predictions through a synthetic PCI diagnostic method. The key role played by ITG has been verified, including measurements of turbulent wave propagation in the ion diamagnetic direction. It is found that the intensity of ITG increases with density, in agreement between simulation and experiments. The absolute fluctuation intensity agrees with simulation within experimental error (+/-60%). The impact of these results on measured scaling of confinement time with density will be discussed, including possible disagreements at low densities where χ_e dominates over χ_i.

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[2]M. Porkolab et al., IEEE Trans. Plasma Sci. **34**, 229 (2006).
[3]R. R. Parker et al., Nuclear Fusion, **25**, 1127 (1985).
[4]J. Candy et al., Phys. Rev. Lett., **91**, 045001 (2003).

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