Abstract Submitted
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Investigating electromagnetic effects on transport and turbulence in DIII-D QH-modes[1] WALTER GUTTENFELDER, B.A. GRIERSON, PPPL, T.L. RHODES, UCLA, K.H. BURRELL, G.M. STAEBLER, GA, D.R. ERNST, MIT — Previous experiments and gyrokinetic simulations in the core (ρ =0.3) of QH-modes have found that the coupling of electrostatic turbulence to magnetic fluctuations (δB) at finite beta is very stabilizing to ITG/TEM turbulence [Guttenfelder, APS-DPP (2015); Ernst, Phys. Plasmas (2016)]. As expected from theory, the electromagnetic (EM) effects are significant as the profile is locally within ˜90% of the kinetic ballooning mode (KBM) threshold. Additional gyrokinetic and TGLF simulations have been run in advance of a planned QH-mode experiment aiming to directly measure core δB using cross polarization scattering (CPS). These "predict first" simulations will be shown to highlight the expected strength of EM effects, the scaling of the predicted amplitude of δB, and the proximity of profiles to the KBM threshold.

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