

Abstract Submitted  
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**Cross Machine Comparison of Turbulence and Transport Measurements on Alcator C-Mod and ASDEX Upgrade**<sup>1</sup> A.J. CREELY, MIT, G.D. CONWAY, SIMON FREETHY, TOBIAS GOERLER, Max Planck Institute for Plasma Physics, N.T. HOWARD, A.E. WHITE, MIT, THE ASDEX UPGRADE TEAM — Experimental turbulence and transport measurements aid in the effort to validate gyrokinetic codes such as GYRO and GENE. There seems to be some discrepancy between the ability of ion-scale simulations to match experimental heat fluxes on Alcator C-Mod [A.J. Creely, PoP 2017] and ASDEX Upgrade (AUG) [D. Told, PoP 2013], motivating additional experimental measurements, such as perturbative thermal diffusivity and electron temperature fluctuations. The perturbative thermal diffusivity is measured on both machines using partial sawtooth crashes [A.J. Creely, NF 2016] and cross machine parametric trends are investigated. Calculations based on partial sawteeth heat pulses are compared to modulated ECH heat pulses on AUG for the first time, and agree within uncertainty. Electron temperature fluctuations are measured with correlation ECE. Comparisons of total temperature fluctuation levels between gyrokinetic codes and experiment seem to show similar trends to electron heat flux, in that they are under-predicted on C-Mod, but matched or even over-predicted on AUG. This implies possible differences in the dominant plasma turbulence, but further study is needed.

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