

Abstract Submitted
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Impact of dilution of deuterium on ion thermal diffusivity and turbulence in C-Mod Ohmic plasmas¹ MIKLOS PORKOLAB, P. ENNEVER, E. EDLUND, J. RICE, J.C. ROST, D. ERNST, C. FIORE, A. HUBBARD, J. HUGHES, J. TERRY, MIT PSFC, M.L. REINKE, ORNL, G. STAEBLER, J. CANDY, General Atomics, ALCATOR C-MOD TEAM — Past experiments on C-Mod and gyrokinetic studies indicated that dilution of the deuterium ion species decreases the ion diffusivity in Ohmically heated deuterium plasmas. Comparison of recent controlled seeding experiments to TGLF and GYRO simulations shows that main ion dilution reduces the ion transport in low density (LOC) plasmas by increasing the critical gradient, while in high density (SOC) plasmas ion dilution primarily decreased the stiffness (1). Meanwhile, there is still a deficit in the predicted electron transport in simulations that are restricted to wavenumbers $k\rho_s \leq 1$. Importantly, measurements of the turbulent spectrum were also carried out with a Phase Contrast Imaging (PCI) diagnostic with a new detector array with an improved frequency response (now up to 1 MHz), and the results are in good agreement with synthetic diagnostic predictions. References: (1) Paul Ennever, Invited Talk at this meeting.

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