

Abstract Submitted  
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**Experimental Evidence of Edge Fluctuation Broadening of ECH Deposition at DIII-D**[1] M.W. BROOKMAN, M.E. AUSTIN, K.W. GENTLE, U. TEXAS, C.C. PETTY, GA, Y. PEYSSON, J. DECKER, CEA CADARACHE, K. BARADA, UCLA, D.E. ERNST, MIT — This work provides experimental evidence for broadening of the ECH and ECCD deposition by edge density fluctuations. Results on the DIII-D tokamak suggest a deposition FWHM  $\sim 1.7$ - $2.8$  times wider than TORAY-GA. A 1D ECH deposition profile was measured through gyrotron power modulation. From 500 kHz, 48-channel ECE measurements and trial ECH deposition functions, a Fourier transformed heat flux is found and fit to transport drive terms. Radially broader ECH deposition best fit calculated fluxes in discharges with higher levels of edge density turbulence. Broadening of deposition does not arise from anomalous transport, which is minimal on DIII-D. Simulation [2] and theory[3] suggest edge ( $\rho > .9$ ) turbulent n\_e fluctuations refract RF waves that pass through them, broadening radial deposition of ECH and ECCD. On ITER, this effect could hinder NTM suppression by broadening ECCD deposition outside the 3/2 island.

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[2] Peysson Y. PPCF 53 (2011)

[3] Kyriakos H. POP 17 (2010)

M.W. Brookman  
U. TEXAS

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