

**Abstract Submitted for the 50th Annual Meeting
Division of Plasma Physics
November 17–21, 2008, Dallas, Texas**

Category Number and Subject:

☐ Theory ☒ Experiment

Modulation of TEM Turbulence in DIII-D L-mode Discharges,* J.C. DeBoo, G.M. Staebler, *General Atomics*, T.L. Rhodes, L. Schmitz, A.E. White, E.J. Doyle, W.A. Peebles, *UCLA*, C. Holland, *UCSD* – Results of an experiment to modulate trapped electron mode (TEM) drift wave activity by varying the local temperature gradient scale length (a/L_{Te}) using ECH will be discussed. When ECH deposition was repetitively switched from heating just inside to just outside the plasma mid-radius, TEM activity at wavenumbers $k_{\theta} = 5\text{--}6\text{ cm}^{-1}$, measured with a Doppler backscattering system (DBS), was modulated at the mid-radius. The viewing location was scanned, showing that the amplitude modulation was spatially localized and peaked between the two ECH deposition regions. Modulation of a TEM drive term, a/L_{Te} , between 2 and 3 resulted in measured turbulent amplitude modulation of about 20% and also produced a modulation in the frequency of the DBS measurements. The sign of the turbulent frequency variation was consistent with changes produced in the electron diamagnetic drift velocity associated with changes in the local pressure gradient. A comparison of results with gyrokinetic stability code calculations will be shown.

*Work supported in part by the US DOE under DE-FC02-04ER54698.