

Abstract Submitted
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Measurement of Radial Electron Thermal Transport due to ETG Modes in a Basic Experiment VLADIMIR SOKOLOV, AMIYA SEN, Columbia University — Production and identification of electron temperature gradient (ETG) mode have been successfully demonstrated in a basic experiment in Columbia Linear Machine CLM [1]. Using a dc bias heating scheme of the core plasma, we are able to produce sufficiently strong ETG modes in CLM experiments. A unique miniature triple probe was used for local measurement of electron temperature and plasma potential fluctuations. Their cross-correlation yields the local radial electron thermal flux. A preliminary measurement of electron thermal conductivity indicates $\chi_{\perp e}$ is about $\sim 3m^2/s \sim 10\chi_{\perp e,GB}$. This result appears to agree with a value of non-local thermal conductivity obtained from a rough theoretical estimation [2]. This research was supported by U.S. Department of Energy Grant No. DE-FG02-98ER-54464.

[1] X. Wei, V. Sokolov and A.K. Sen, Phys. Plasmas, 17, 042108 (2010).

[2] H.L. Berk et al, Nucl. Fusion, 33, 263 (1993).

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