Abstract Submitted
for the DFD15 Meeting of
The American Physical Society

Turbulence-driven mean flow generation within laboratory Taylor-Couette flow M.J. BURIN, CSU San Marcos, H. JI, Princeton, G. TYNAN, UCSD, E. EDLUND, MIT, E. GILSON, K. CASPARY, PPPL, R. EZETA APARICIO, U. Twente, P. DANG, Princeton, M. MCNULTY, Rutgers — We report on a new experimental effort to study mean (or zonal) flow generation within a turbulent laboratory fluid with a wide-gap Taylor-Couette apparatus. Mean flows from externally-forced turbulence are observed, both with and without a linearly sloped end-cap, which when present enforces a radial variation of potential vorticity. We characterize the dependence of the mean flow on various experimental parameters, such as forcing strength and azimuthal mode number, and offer accounts of their dynamical origins.

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Date submitted: 02 Aug 2015 Electronic form version 1.4