

Abstract Submitted
for the DFD15 Meeting of
The American Physical Society

Turbulence structure subjected to “precession-like” rotation¹

KARTIK IYER, IRENE MAZZITELLI, LUCA BIFERALE, FABIO BONAC-CORSO, University of Rome Tor Vergata — We report results from a series of numerical experiments in which the orientation of the rotation axis of a turbulent flow simulated in a periodic domain is arbitrarily changed. It is well known that rotation weakens spectral transfer and renders the flow anisotropic across all scales. However, when the orientation of rotation is changed, the spectral transfer becomes stronger and the flow becomes more isotropic. The large scale vortical structures aligned with the rotation are destroyed by the change in rotation axis. Based on these findings we attempt to discuss the dynamics of rotating turbulence subjected to precession.

¹Supported by the ERC AdG NewTURB num. 339032

Kartik Iyer
University of Rome Tor Vergata

Date submitted: 28 Jul 2015

Electronic form version 1.4