

Abstract Submitted  
for the DFD14 Meeting of  
The American Physical Society

**Experimental observation of steady inertial wave turbulence in deep rotating flows**<sup>1</sup> EHUD YAROM, ERAN SHARON, Hebrew Univ of Jerusalem — The theoretical framework that should be used for describing rotating turbulence is the subject of an active debate. It was shown experimentally and numerically that the formalism of 2D turbulence is useful in the description of many aspects of rotating turbulence. On the other hand, theoretical and numerical work suggests that the formalism of wave turbulence should provide a reliable description of the entire 3D flow field. The waves that are suggested as the basis for this turbulence are Coriolis-force-driven inertial waves. Here we present experimental results that suggest the existence of inertial wave turbulence in deep steady rotating turbulence. Our measurements show energy transfer from the injection scale to larger scales, although the energy spectra are concentrated along the dispersion relation of inertial waves. The turbulent fields are, therefore, well described as ensembles of 3D interacting inertial waves.

<sup>1</sup>This work was supported by the Israel Science Foundation, Grant No. 81/12.

Ehud Yarom  
Hebrew Univ of Jerusalem

Date submitted: 08 Jul 2014

Electronic form version 1.4