Abstract Submitted
for the DFD12 Meeting of
The American Physical Society

Experimental evidence of a triadic resonance of plane inertial waves in a rotating fluid THIERRY DAUXOIS, GUILHEM BORDES, Laboratoire de Physique de l Ecole Normale Superieure de Lyon, CNRS and Universite de Lyon, France, FRÉDÉRIC MOISY, PIERRE-PHILIPPE CORTET, Laboratoire FAST, CNRS, Univ Paris Sud, UPMC Univ Paris 06, France, STRATIFIED FLUIDS TEAM, ROTATING FLUIDS TEAM — Plane inertial waves are generated using a wavemaker, made of oscillating stacked plates, in a rotating water tank. Using particle image velocimetry, we observe that, after a transient, the primary plane wave is subject to a subharmonic instability and excites two secondary plane waves. The measured frequencies and wavevectors of these secondary waves are in quantitative agreement with the predictions of the triadic resonance mechanism. The secondary wavevectors are found systematically more normal to the rotation axis than the primary wavevector: this feature illustrates the basic mechanism at the origin of the energy transfers towards slow, quasi two-dimensional, motions in rotating turbulence.

Reference: G. Bordes, F. Moisy, T. Dauxois, P.-P. Cortet, Phys. Fluids **24**, 014105 (2012), doi: 10.1063/1.3675627

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Date submitted: 25 Jul 2012 Electronic form version 1.4