Abstract Submitted
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Experimental Study of Energy Transfer by Inertial Waves During the Build up of Turbulence in a Rotating System[1] ERAN SHARON, The Hebrew University — We study the transition from fluid at rest to turbulence in a rotating water cylinder. We show that the energy, injected at a given height, is carried by inertial wave packets through the volume. These waves serve as the main energy transport mechanism and even when they are of large amplitude, they propagate in velocities consistent with those calculated form linearized theory. Nonlinear energy transport is governed by a second time scale, which depends on the velocity of the flow. It, thus, takes place only at long times and allows for the observed extended linear behavior. The observed linear effects that are unique to rotating flows can, therefore, highly impact energy transfer, distribution and statistics, even at high Reynolds numbers. Such effects are of special importance when considering rotating turbulent fields that are driven by intermittent energy sources.

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Eran Sharon
The Hebrew University

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