

Wave turbulence in a rotating channel

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This talk concerns rapidly rotating (small Rossby number), wall-bounded turbulence, confined in just one direction. Thus, unlike the fully confined case, there are no strictly discrete normal modes. The flow is naturally expressed as a superposition of wave-guide modes, whose wave vector is discrete in the direction of confinement, but continuous in the other two directions. One such mode is special because it is two-dimensional and non-dispersive, while the remainder form the "wave component". Using wave-turbulence analysis, the evolution equations of the wave-component energy spectra and co-spectra of decaying turbulence have been derived. The results (JFM, February 2014) demonstrate that, surprisingly, the wave component is *energetically* independent of the 2D component. The 2D component nonetheless induces statistical decorrelation of different wave-guide modes.