HAMILTONIAN DESCRIPTION

The inertial waves in incompressible rotating fluid obey the following dispersion law:
\[ \omega = 2\Omega |\cos \theta|, \]
where \( \Omega \) is the value of the angular velocity, \( \theta \) is the angle between the wave vector \( k \) and the axes of rotation. When the rotation is rapid the waves interact weakly, that means that we deal with so-called "weak turbulence". The problem attracts the attention of experimenters [3] and its theoretical study is far from complete. The theory of weak turbulence was studied using a helicity decomposition in [2]. Meanwhile, the Hamiltonian formalism has not been developed.

References