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AAS022-P01

Room:Convention Hall

Time:May 25 14:00-16:30

On the resonance for the internal waves in the Atmosphere of the Earth

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We consider various mathematical properties of a solution of the system of partial differential equations, modelling 3-dimensional flows in the non-homogeneous atmosphere of the Earth. Since the density of the atmosphere is not homogeneous, there occur internal waves due to some initial perturbation. We investigate the frequency of these waves and its relation to the periodical external forces, such as resonance, etc. From the mathematical point of view, we establish the existence and uniqueness of the solution for non-homogeneous system, prove the stabilization of the limit amplitude of the solution for periodical external forces, find the spectrum of normal vibrations of the corresponding differential operators, and investigate the conditions for the resonance effect.

Keywords: internal waves, fluid dynamics, stratified fluid, turbulence, induced vibrations, essential spectrum