非線型科学 コロキウム
Nonlinear Science Colloquium

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講演題目：Wave resonance and zonal flow formation

In wave systems, resonant interactions yield a powerful energy transfer mechanism among linear wave modes, and one may expect that time development of the wave system can roughly be described by considering only the resonant interaction instead of fully nonlinear interactions. However, it has been found in some wave systems that nonresonant interactions are indispensable for observed flow pattern formations.

In this talk, 2D flows are discussed on a rotating sphere or in a beta-plane where zonal flow structures are found to emerge even when the initial flow field is random and isotropic. These phenomena have attracted attention of researchers, firstly because they look similar to the flow patterns observed in Jovian atmosphere, and secondary because the Rossby waves are considered to play an important role in the time-development. In fact it can be shown that the flow field converges to that governed only by resonant interactions of the Rossby waves, as the differential rotation rate increases. However, the resonant interaction of the Rossby waves cannot transfer the energy to the zonal modes, which means that nonresonant interactions are necessary for the emergence of the zonal flows. The roles of the resonant and nonresonant interactions in the zonal flow formation will be discussed together with the energy transfer between the wave modes.

日時：**2018年　6月14日（木）17:00~18:00**

場所：早稲田大学　西早稲田キャンパス
55号館N棟1階 第2会議室

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