Contribution ID: **8** Type: **Oral Presentation**

Synchronization on Complex Networks

Tuesday, 12 July 2016 11:40 (20 minutes)

Abstract content
   (Max 300 words)
Formatting &
Special chars

The synchronization transition of coupled random frequency oscillators is revisited. The Kuramoto model on a complete graph is known to exhibit a mean-field-type continuous phase transition in both phase and frequency synchronization with a unimodal symmetric distribution of intrinsic frequencies. We consider the Kuramoto model on complex networks such as Erdos-Renyi random networks and scale-free networks, where quenched disorder in connectivity is present in addition to quenched disorder in intrinsic oscillator frequencies. We find that frequency disorder fluctuation induces anomalous finite-size-scaling behaviour near the onset of the synchronization. More interestingly, connectivity disorder fluctuation changes the nature of the synchronization transitions, when the random frequency distribution takes a flat or a bimodal shape.

Primary author: Prof. PARK, Hyunggyu (Korea Institute for Advanced Study)

Presenter: Prof. PARK, Hyunggyu (Korea Institute for Advanced Study)

Session Classification: Parallel Track A: Astrophysics and Space Physics, Plasma, Gravitation and Cosmology