



## **ICTS Statistical Mechanics Seminar**

- Title** : Higher-order interactions dictate the biodiversity in the three species model.
- Speaker** : Priyanka (University of Illinois Urbana-Champaign)
- Date** : Wednesday, 04 May 2022
- Time** : 03:00 pm (IST)
- Abstract** : Microbiomes have inherently complex dynamics in nature and are prone to changes by various external and internal factors. Understanding the sequential arrival of species is a relevant approach to quantifying microbiota and is also valuable for many bioengineering aspects. In my talk, I will discuss a mathematical model and theoretical understanding of sequential arrival dynamics for three species consortiums that involve both pairwise and higher-order interactions. The studies show that increased higher-order interactions in the community have a non-monotonic impact on biodiversity and promote coexistence. Further, we explicitly quantify that multi-stability and time interval between arrivals are necessary and sufficient to observe priority effect in any consortium. Continuous sequence arrival of species with brief time intervals leads to species' coexistence. Further, this study adds a new outlook and provides a systematic framework for the higher-order interaction and sequential arrival.
- Venue** : Online and Madhava Lecture Hall
- Zoom link: <https://icts-res-in.zoom.us/j/85827160077?pwd=NUxZd2hmMVVpZVNhTHMrNTFzeHNidz09>  
Meeting ID: 858 2716 0077  
Passcode: 040422