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TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Colloquium

Title : The ecology and evolution of microbiomes

Speaker : Akshit Goyal (Massachusetts Institute of Technology, USA)

Date : Monday, 04th April, 2022

Time : 03:30 pm (IST)

Abstract : Microbes are ubiquitous on Earth and dwell in diverse collectives called microbiomes. Complex interactions between microbiome members lead to their macroscopic functions, which profoundly impact life on the planet. While recent biological advances have generated elaborate catalogs of these systems, we are far from answering basic ecological and evolutionary questions about them. For instance, how do microbiomes maintain high diversity, reorganize and evolve in response to perturbations, and collectively interact to sustain their emergent functions? I will show conceptual models and theoretical frameworks that view such emergent microbiome phenomena — namely diversity, multistability and correlated dynamics — as natural consequences of resource competition and cooperation. These models offer a mechanistic view of microbiomes, while generating quantitative predictions in agreement with the available data. Finally, I will discuss how insights from this work may lead to a theory to coarse-grain microbiomes, from 10 billion cells to a handful of effective variables.

Venue : Please click on the below link to join the meeting

<https://icts-res-in.zoom.us/j/88188679397?pwd=UnVyVExwZUxCSE1l3c3RTM3ZNVTRuUT09>

Meeting ID: 881 8867 9397

Passcode: 040405

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