

Seminar

Dynamical Complexity in Living Active Matter

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Microscopic living matter such as bacteria inhabit highly fluctuating environments and are able to survive in low-nutrient natural resource baths. It is now well recognised that nutrient exchanges among microbes play a vital role in their survival. The existence of such exchanges raises fundamental questions about the dynamics of these interactions.

In this talk, we will explore experimentally and theoretically a realisation of such interactions in which active bacteria dynamically respond to the oxygen produced by immotile green algae through photosynthesis. Even in this simplest mixture of active-passive suspensions, we find a complex dynamics involving nutrient exchanges and enhanced algal diffusivity.

Towards the end of the talk, I will briefly discuss our investigations on emergent behaviour in a living fluidic network of filamentous fungi, which presents another fascinating example of dynamical complexity in living systems.

Tuesday, Jun 3rd 2025 16:00 Hrs (Tea / Coffee 15:45 Hrs) Auditorium, TIFRH