

## **Colloquium**

### **Bacteria network for growth and survival**

**Samay Pande**

**ETH Zurich**

Explaining emergence and maintenance of cooperation remains one of the most fundamental and fascinating themes of evolutionary biology. Of particular importance to this broad theme is the question of why should individuals invest their resources for the good of others when taking benefits of cooperation without investing resources in cooperation could yield more fitness benefits. In my presentation, I will discuss observations with both lab and natural bacterial isolates which suggest that bacteria in nature might persist as a network of interacting cells. I will highlight how synergistic interaction in natural and lab populations of bacteria might allow for better survival and growth.

Among animals, examples of how within group diversity that increased total group productivity are abound (eg. lions hunt in groups in which different individuals perform different tasks). However, although research on microbial social evolution has burgeoned in the past two decades, no study to my knowledge has addressed whether diversity among microbes might evolve and be maintained by synergistic interaction between different individuals. In my presentation, I will highlight the effects of natural diversity within fruiting bodies of social bacterium *Myxococcus xanthus* on total group performance. Our results highlight the importance of synergistic interactions for the growth and survival of bacterial populations.

*M. xanthus* is a predatory bacterium that forms multicellular spore filled fruiting bodies upon starvation. However, not much is known about the importance of predatory behaviour of *M. xanthus* on the ecology and evolution of local microbial communities. Hence, I will also highlight the importance of studying predator prey interactions using *M. xanthus* as a model predator bacterium.

***Wednesday, Sep 5<sup>th</sup> 2018***

***4:00 PM (Tea/Coffee at 3:30 PM)***

***Auditorium, TIFR-H***