Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally, Ranga Reddy Dist., Hyderabad - 500107

Students' Annual Seminar

Population fluctuations in bacterial colonies growing on hard surfaces

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Bacterial colonies growing on hard agar surfaces exhibit a variety of patterns. A colony's shape can vary from compact circular to branched like, depending on various environmental factors. Nutrient concentration and population fluctuations play major roles in deciding the fate of the colony. I will present a model based on stochastic Fisher-Kolmogorov-Petrovsky-Piscounov equation to study colony growth. Using this model we explore nutrient concentration and fluctuations affecting the growth dynamics. We found that population fluctuations destabilizes, and makes the colony front inhomogeneous. We also found that varying nutrient concentration drives the morphological transitions in presence of demographic noise, and have no effect on the shape of colony otherwise.

References:

https://journals.aps.org/pre/abstract/10.1103/PhysRevE.96.052403

Monday, Apr 23rd 2018

2:00 PM (Tea/Coffee at 01:30 PM)

Seminar Hall, TIFR-H