

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

Homi Bhabha Road, Mumbai-400 005

July 18, 2018

ASET Colloquium

- Speaker** : **Dr. Akash Gulyani** (*Institute for Stem Cell Biology and Regenerative Medicine, Bengaluru*)
- Title** : **Sensing across scales: visualizing cellular dynamics and discoveries in natural light sensing**
- Date & Time** : **Friday 10 August 2018 at 16:00 hrs.**
- Venue** : **Lecture Theater (AG-66.)**

Abstract :

I will present our multi-faceted approach of sensing dynamics across scales, with an emphasis on developing new measurements and tools. I will discuss development of fluorescent biosensors for visualizing 'active' conformations of signaling proteins in living cells/tissues. Interestingly, a new biosensor for a specific Src-family-kinase, Fyn reveals striking compartmentalization of signaling and dynamic cross-talk between adhesion and growth factor receptors in cells. Here, I will also highlight our new mitochondrial probes for visualizing unexplored patterns of mitochondrial activity, organization and dynamics in live cells.

I will showcase our recent discoveries of new modes of natural light sensing. We show that organisms (planarian flatworms) possessing simple eyes and brain can accomplish sophisticated sensing and neural processing. Further, we have discovered dramatic examples of acute light sensing independent of the eye. These findings constitute a significant advance in our understanding of how light is sensed in nature AND offers new ways to study eye-brain regeneration in unprecedented ways.

About the Speaker:

Dr. Akash Gulyani did his PhD on 'photo physics and self-assembly of fluorescent dyes' from IISc in 2005. During his post-doctoral period, he worked with Prof. Klaus Hahn (University of North Carolina, Chapel Hill), developing fluorescent biosensors for protein activity. He is a faculty at the inStem since Dec 2012.



Dr. Satyanarayana Bheesette
(Coordinator, ASET Forum)