ICTS Colloquium

Title   :   Algorithms and neural circuits in olfaction

Speaker   :   Venkatesh N. Murthy, Harvard University, Cambridge

Date   :   Monday, January 13, 2020

Time   :   3:30 PM

Venue   :   Emmy Noether Seminar room, ICTS Campus, Bangalore

Abstract :   Animals sense the chemical world to guide their behaviours. Fluctuating mixtures of odorants, often transported in fluid environments, are detected by an array of chemical sensors and parsed by neural circuits to recognize odor objects that can inform behavioral decisions. Unlike other sensory systems, the olfactory system lacks an obvious topographic organization, has a shallow hierarchy and neural connectivity across brain regions is seemingly unstructured. These anomalies offer an opportunity to uncover common principles across different sensory systems in the brain. Our research group uses a variety of biophysical, neurophysiological and behavioral methods to understand how odorant features are encoded in the activity of neurons and transformed in different stages of processing. I will share our progress in seeking algorithmic and neural explanations for how animals solve some specific olfactory tasks. I hope to also ignite interest among theorists to work on problems in chemical sensing.