

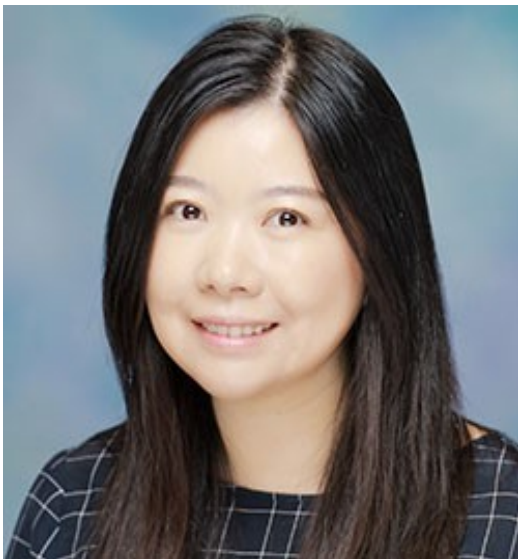
BME SEMINAR SERIES WINTER 2020

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Thursday, January 30, 2020
4:00 – 5:00 pm
Tech L361

“Watching the Brain in Action: Creating Tools for Functional Analysis of Neural Circuitry”



To study the neural circuitry, the action of one cells under the context of others, one would precisely measure and perturb specific neuronal populations and molecules in behaving animals who are specifically engaged in performing the computation or function of interest. The dataset of millions of neurons firing together underlying a behavior are required to develop and refine theories (hypotheses) explaining animal behavior in terms of brain physiology. The focus of lab is to develop novel genetically encoded indicators based on fluorescence proteins, especially focusing on direct and specific measurement of myriad input signals with needed spatial and temporal resolutions. In this talk, I will discuss our recent progress into develop and apply a new suite of genetically encoded indicators of neural activity. I will discuss the design, characterization and applications of these genetically encoded indicators. We also validate our sensor design platform, which could also be applied to developing sensors for a broad range of neuromodulators, including norepinephrine, serotonin, melatonin, and opioid neuropeptides. In combination with calcium imaging and optogenetics, these sensors are well poised to permit direct functional analysis of how the spatiotemporal coding of neural input signaling mediates the plasticity and function of target circuits.

Host: Hao Zhang