

**Title:**

Using coherence to tune optical scattering and seeing individual neurons with three-photon microscopy

**Abstract:**

My first topic is how to dynamically control a scattered field. If we shine a laser onto a target that is a sphere, we expect an intensity maximum in the forward direction. Can we suppress this maximum and steer it to other directions by changing the coherence properties of the incident field/ light source?

The second topic is can we “see” cellular resolution in in-vivo neuron activities deep in the brain? I’d like to share with you our ideas by using adaptive optical three-photon microscopy to achieve this goal. This advanced imaging technology will help to study the process of neurogenesis and neuron migration in the adult brain.

**Bio:**

My name is Yangyundou Wang. I got my PhD degree from VU University, Amsterdam, Netherlands in theoretical physics in 2017. Now I am a research fellow in the Wellman Center for Photomedicine at Massachusetts General Hospital and Harvard Medical School. My research interests are Optical Coherence, Light Scattering, Optical Coherence Tomography (OCT), and Three-photon Microscopy (3PM).