

Neuroscience Seminar Series

Friday, May 19th, 2017 at 11:30

Salle des Conférences (R229)

Centre Universitaire des Saints-Pères

45 rue des Saints-Pères, 75006 Paris

Na Ji

PhD

Janelia Research Campus, Virginia, USA

Probing neural circuits with shaped light

To understand computation in the brain, one needs to understand the input-output relationships for neural circuits and the anatomical and functional relationships between individual neurons therein. Optical microscopy has emerged as an ideal tool in this quest, as it is capable of recording the activity of neurons distributed over millimeter dimensions with sub-micron spatial resolution. I will describe how we use concepts in astronomy and optics to develop next-generation microscopy methods for imaging neural circuits at higher resolution, greater depth, and faster speed. By shaping the wavefront of the light, we have achieved synapse-level spatial resolution through the entire depth of primary visual cortex, optimized microendoscopes for imaging deeply buried nuclei, and developed a video-rate (30 Hz) volumetric imaging method. We apply these methods to understanding neural circuits, using the mouse primary visual cortex as our model system.

Those interested in meeting with the speaker please contact
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