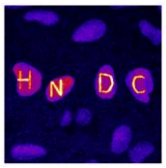
Harvard NeuroDiscovery Center
COLLABORATING TO CURE
NEUROLOGIC AND PSYCHIATRIC DISEASE



Harvard NeuroDiscovery Center Enhanced Neuroimaging Core
Presents

Spring Virtual Microscopy Workshop

This workshop focuses on several most basic and popular topics in optical imaging technology, including resolution limit, super-resolution, confocal imaging and digital image processing.

Optical imaging is a very "hands-on" practice. Such "hands-on" requirement greatly limits the capacity of workshops in this area. To overcome this problem, the HNDC Enhanced Neuroimaging Core introduces its first "Spring Virtual Microscopy Workshop". Using remote control on multiple imaging systems in our core, we can live demo the actual imaging process in the classroom along with presentation to explain imaging principles. We call it "eyes-on" practice, which can provide an interactive microscope imaging environmental to a large number of participants.

This workshop features a mixture of theories, practical guidelines, imaging tips and interesting historical stories. Whether you are new to optical imaging or already have experiences, you may find this workshop helpful in enhancing and expanding your knowledge on optical imaging technology.

This workshop is free, but requires registration. Please RVSP to Lai Ding lai_ding@hms.harvard.edu

Detailed workshop information is below.

Instructor: Dr. Lai Ding, Enhanced Neuroimaging Core.
Location: HMS Quad Goldenson building 122 (all dates)
Time: 10AM – 12PM (all dates)

Part I March 11th "**Resolution: know the limit and how to achieve it**"

Introduce the Abbe limit formula
Understand why there is a resolution limit
Discuss how to achieve the best resolution
Live demo on the difference between point scan and CCD based imaging systems

Part II March 18th "**Super-resolution: a Case Study on STED**"

Introduce the idea and approach for "super-resolution"
Know the advantage and limitation of super-resolution systems.
Live demo on advantage of the STED 3X system over standard confocal system.

Part III March 25th "**Principles of Confocal Microscopy**"

Introduce principles of confocal and multiphoton imaging.
Understand how a modern confocal system works.
Live demo on point scan confocal, spinning disk confocal and multiphoton system.
Live demo on the different image formation between point scan and CCD based imaging systems

Part IV March 26th "**Practical Guidelines for Acquiring a Confocal Image**"

Live demo on guidelines for acquiring better confocal images.
Topic covers laser setting, detector adjustment, image format, averaging methods, avoiding crosstalk …

Part V April 2nd "**Introduction to Digital Image Processing**"

Introduce basics on digital image processing and ethics rules.