



SPINNING DISK CONFOCAL MICROSCOPY

COURSE CONTENT

Spinning disk: a different type of confocal

Fundamentals of optical imaging

Magnification, resolution, PSF and convolution

From widefield to confocal illumination

The optical slicing (Z-stack)

Anatomy of a spinning disk confocal microscope

Light source and optimization of multi-channel imaging

Effects of disk rotation speed and pattern on performances and applications

Camera

Alternative configurations

Point scanning confocal

Multiphoton excitation

Image reconstruction and deconvolution

PRATICAL SESSION

- *Measuring the 3D PSF with fluorescent beads*
- *Setting the correct exposure time and laser power*
- *Fluorescence excitation/detection at multiple wavelengths*
- *Spatial sampling and the Nyquist theorem. Comparison of different detectors*
 - *Comparison of different disk patterns*
 - *Optical slicing and 3D reconstruction*
 - *Image Deconvolution*