

## **EQUIPMENT: Stimulated Emission Depletion with Continuous Wave confocal microscope**

### **Requested Technology and Application:**

- Stimulated Emission Depletion technology with Continuous wave depletion laser in combination with high resolution point confocal microscope.
- As the STED principle also works with continuous wave (CW) lasers, both the excitation and the depletion should be CW to avoid the need of synchronized pulsed Light sources.
- Fluorescence microscope capable of super-resolution imaging. As in addition to fixed sample work, we want to be able to generate snapshots and possibly also time-series of fast events in living samples.
- Method that generates super-resolved images fast and without the need of post-processing.
- The system should be capable of providing such instantaneous super-resolved images with a resolution of approx 80 nm for fluorescent proteins commonly used in in-vivo imaging (like Yellow Fluorescent Protein, YFP).
- The system also has to be capable of high-throughput super-resolution imaging of multiple samples.
- The system should work with common fluorescence labels and fluorescent proteins in the green/yellow range, so that a strong orange depletion laser is required.

### **Technical Data:**

- Inverted epifluorescence microscope:
  1. 10x fluorescence capable objective.
  2. 100x highest possible numerical aperture (NA) objective for STED imaging
- Fast galvanometric z-drive (preferably stage-based, not objective-based).
- High resolution confocal scanner with galvanometric (variable speeds), resolution 8.192 x 8.192 pixel and high speed scanner with resonant system (8000 Hz)
- Prism-based spectral confocal detector
- Two internal spectral detectors with independent photomultiplier.
- 458nm, 476nm, 488nm, 514 nm, 543 nm and 633 nm continuous wave laser lines
- Stimulated emission depletion (STED) microscopy module with continuous wave orange depletion laser.
- 2 Sensitive Avalanche Photodetectors for low-light imaging.
- Vibration dampening table suitable for STED imaging.
- Advanced Fluorescence software implementation of STED imaging.
- Automatized calibration feature for the STED module inside the confocal imaging software.
- Deconvolution software for STED images

**QUANTITY: 1**

