

Multi-color, multi-modal, high precision 3D super-resolution imaging with Double Helix Optics PSF Engineering

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Abstract

Super-resolution microscopy is increasingly becoming an essential tool in the study of fundamental biophysical processes. While approaches such as STORM, PALM, and DNA-PAINT provide high lateral precision, they are limited in axial precision and range. Double Helix Optics offers solutions for achieving high axial precision, extended-depth super-resolution imaging using Point Spread Function (PSF) engineering technology. With Double Helix's SPINDLE² you can perform high precision 3D multi-color imaging and tracking with single molecule sensitivity.

In this workshop we present an introduction to Double Helix Optics' engineered PSF technology using our new multi-color, multi-modal SPINDLE². We will provide a demonstration of various imaging modalities – including dual-color, multi-PSF, and single-channel bypass – that can be achieved using the SPINDLE², along with a walkthrough of our 3DTRAX[®] ImageJ/Fiji image reconstruction and analysis software. The last portion of the workshop will be dedicated to attendee questions and discussion of attendee specific applications and the utilization of Double Helix Optics to advance their research.