



DoubleHelix™

Double Helix's breakthrough 3D nano-scale imaging dramatically extends the precision and accuracy limitations of 3D imaging technology.

At a glance

Double Helix's innovative integrated image capture and image processing system gives researchers the ability to easily capture and analyze 3D images of cellular structures down to the single molecule level. Using Double Helix's patented DH-PSF phase mask technology as its foundation, 3D super-resolution imaging is now affordable for cutting-edge applications, including molecular level imaging and tracking.

Key Advantages

- Easy to use and no modification to microscope
- Affordable
- Best 3D depth, precision combination
- Maintains focus over extended depth
- Compatible with wide range of scientific microscopes and cameras

Overview

Today, one of the major challenges of scientific study and discovery is the inability to clearly observe and study the details of cellular structures at the molecular level. Clarity of image has been limited by resolution and imaging in two dimensions.

Seeing What Previously Could not be Seen

With Double Helix's light engineering technology, it is now possible to image and track at the level of single molecule inside the individual cell. Our technology, in use today, is already accelerating advances in scientific discovery. The possibilities are endless.

With Double Helix's SPINDLE™, accurate precise 3D nano-scale imaging is accessible, easy to use, and affordable to every lab. Integrating our patented phase mask technique into a high precision optical module with powerful software will affordably extend your imaging capabilities to sub-diffraction 3D imaging.

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We expect that the DH-PSF optics will become a regular attachment on advanced microscopes, either for super-resolution 3D imaging of structures, or for 3D super-resolution tracking of individually labelled bio-molecules in cells or other environments

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Professor W.E. Moerner | Nobel Laureate
Stanford University

Double Helix SPINDLE™

The Double Helix SPINDLE™ provides sample measurement with the highest precision - depth of field combination commercially available. An integrated image capture and processing system, the SPINDLE™ gives researchers the ability to easily capture and analyze 3D images of cellular structures down to the single molecule level. Compact in size and optimized for every emission wavelength, the SPINDLE™ attaches directly to your existing camera (C-mount) and microscope (camera port). No adjustment to your existing set up is required for operation.

The SPINDLETRAX™ software - optimized for processing and analyzing captured images - leverages computer vision algorithms and parallel processing to enable high precision 3D localization, all available in an easy to use ImageJ plugin.

Unlike Other Technologies

The Double Helix SPINDLE™ uses our patented engineered DH-PSF technology to capture molecular level localization information in 3D. The light emitted from each emitter in the sample focuses into two image lobes that rotate to capture depth information. The information delivered by the rotating lobes is converted into three-dimensional particle localization information.

Specifications

Dimensions	8.39" x 3.34" x 3.34"
Depth Range	> 4 μm
Field of View (FOV)	up to 200 x 200 μm
Lateral (x-y) Precision	20nm
Axial Precision	35nm
Light Efficiency	> 95%
Wavelength Range	400-850 nm

About Double Helix

Double Helix is a Boulder CO based optics company that designs and develops next generation high precision 3D imaging products using its patented Double Helix light engineering imaging techniques. Initial application of the company's technology brings sub-diffraction (super-resolution) 3D nanoscopy to the life sciences and material sciences markets. We focus on ensuring the highest quality 3D imaging technology is available at an affordable price point.

To learn more contact us at imaging@doublehelixoptics.com | doublehelixoptics.com



Replaceable mask to fit with your wavelength needs

