

Collecting multidimensional data at high spatial resolution with Engineered Image Scanning Microscopy (eISM)

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In combination with point spread function engineering, a recording-type Image Scanning Microscope (ISM) is able to collect multidimensional data from specimens.

In such an “engineered” ISM (eISM), both excitation and detection PSFs are tailored depending on the desired quality of information, which is subsequently collected in a single scan process.

We present results which demonstrate the feasibility of measuring 3D structural information in linear and two-photon fluorescence excitation as well as the collection of fluorescence emission spectra.

References

- [1] Clemens Roider, Rafael Piestun, and Alexander Jesacher, "3D image scanning microscopy with engineered excitation and detection," *Optica* 4, 1373-1381 (2017)
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- [3] F. Strasser, M. Offterdinger, R. Piestun, and A. Jesacher are preparing a manuscript to be called "Spectral Image Scanning Microscopy"