

MULTIMODE FIBER-BASED ENDOSCOPE FOR HIGH RESOLUTION FLUORESCENCE IMAGING OF BULK TISSUE

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Imaging of bulk intact biological tissue is one of the main prerequisites to understanding physiological cellular processes. Limited light penetration due to scattering and absorption is one of the major obstacles when it comes to imaging deep in turbid tissues. Optical fibers present a means to deliver and collect light beyond the reach of light focused by microscope objectives with minimal tissue damage. This imaging method however generally suffers from low resolution and low imaging speed. We have built a multimode fiber-based scanning setup for imaging of fluorescently-labeled specimens with high resolution. We will review our latest fundamental and technological progression and present the imaging capability on fluorescently-labeled brain tissue.

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