

Abstract Submitted
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Holography Fluorescence Microscopy JUAN GOMEZ VELEZ, YAMIL NIEVES, JUSTINE DUPERE, MYUNG KIM, DAVID CLARK, University of South Florida — Digital holography is a fast-growing research field that has drawn increasing attention leading to a myriad of new technological applications due to its powerful three-dimensional (3D) imaging capacity. Previously, fluorescent microscopy has been limited by the need of coherent light sources or two dimensional scanning. Recent developments in digital holography, including self-interference incoherent digital holography (SIDH), provide highly versatile capabilities for 3D holographic imaging with incoherent light that can remove the barrier between fluorescence and holography. Current progress in fluorescence cell imaging is presented using an SIDH module attached to a hand built customized fluorescence microscope. The module does not employ the use of coherent light sources or scanning devices. Methods are proven to be effective through imaging of fluorescent beads and preliminary images of drosophila eggs. Future work will include holography fluorescence microscopy of cellular processes, such as mitosis and motility of cells tagged with fluorescent proteins.

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