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Long Working Distance Fluorescence Detection and Lifetime Imaging through Stimulated Emission¹ FU-JEN KAO, National Yang-Ming University, PO-YEN LIN, Academia Sinica — Stimulated emission is a newly developed modality that has found increasing applications in advanced optical microscopy. Its utilization offers a variety of advantages over spontaneous one, including stimulated emission depletion microscopy (STED) for sub-diffraction limited resolution and stimulated emission detection for dark fluorophores. In this presentation, we are demonstrating the unique aspects of spatial coherence as a result of stimulated emission, which is applied for long working distance fluorescence detection and lifetime imaging. When compared spontaneous emission, stimulated emission based detection does not require high numerical aperture optics to collect signal efficiently. The characterization of fluorescence lifetime and anisotropy measurement through stimulated emission are investigated and summarized succinctly in this presentation.

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