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Optical Coherence of the Fluorescence of a Driven Single-Atom with Slow and Fast Light Media TONY ABI-SALLOUM, Physics and Astronomy Dept. Widener University, Chester, Pa. 19013, JON DAVIS, FRANK NARDUCCI, Naval Air Systems Command, Patuxent River, Md. 20670 — In this talk we examine the first- and second-order two-time correlation functions of the fluorescent field of a driven single-atom in the presence of a slow light medium. We suggest experimental arrangements of the Young's double slit type (g(1) measurements) or of the Hanbury Brown and Twiss type (g(2) measurements in which one arm contains a positively or negatively dispersive atomic medium. The slow propagation of the corresponding field through the added medium has a dramatic effect on the resulting correlation functions. In this talk, We present a systematic study of these systems and their impact on the first- and second-order coherence functions with varying group velocity delay. Different cases of negatively (slow light) and positively (fast light) dispersive media are studied leading to a variety of alterations in the correlation functions.

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