

Abstract Submitted
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EIT Noise Resonance Power Broadening: a probe for coherence dynamics MICHAEL CRESCIMANNO, Dept. of Physics and Astro, Youngstown State Univ., SHANNON O'LEARY, Dept. Physics, Lewis and Clark, CHARLES SNIDER, Dept. of Physics and Astro, Arizona State Univ. — EIT noise correlation spectroscopy holds promise as a simple, robust method for performing high resolution spectroscopy used in devices as diverse as magnetometers and clocks. One useful feature of these noise correlation resonances is that they do not power broaden with the EIT window. We report on measurements of the eventual power broadening (at higher optical powers) of these resonances and a simple, quantitative theoretical model that relates the observed power broadening slope with processes such as two-photon detuning gradients and coherence diffusion. These processes reduce the ground state coherence relative to that of a homogeneous system, and thus the power broadening slope of the EIT noise correlation resonance may be a simple, useful probe for coherence dynamics.

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