

Abstract for an Invited Paper  
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**Slow-light nonlinear optics with cold atoms**

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Electromagnetically induced transparency (EIT) suppresses linear absorption and results in steep normal dispersion for light propagating in an absorbing medium, which renders it possible to study nonlinear optical phenomena at low light intensities and under slow light propagation conditions. We will discuss the basic physics of the atomic coherence and interference, and present experimental studies of the EIT-assisted nonlinear optics with cold atoms. Specific examples, such as slow and superluminal light propagation in cold atoms, and nonlinear wave mixing at low light intensities will be discussed. We will also present our recent experimental results on the phase dependent interference and light switching light at low power levels. We gratefully acknowledge the support of the National Science Foundation.