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Influence of atomic coherence diffusion on EIT and stored light YANHONG XIAO, IRINA NOVIKOVA, DAVID PHILLIPS, RONALD WALSWORTH, Harvard-Smithsonian — We report an experimental study of the effect of atomic coherence diffusion on electromagnetically induced transparency (EIT) and stored light in Rb vapor cells. Due to diffusion of ground state coherence over the full volume of the cell – i.e., beyond the laser beam volume – we observe much longer storage times than expected from the time scale associated with the lowest order diffusion mode through the laser beam, as well as the retrieval of multiple pulses when long intervals are used between retrievals.

Ronald Walsworth
Harvard-Smithsonian

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