

Abstract Submitted
for the DAMOP17 Meeting of
The American Physical Society

Photonic band gap induced in an atomic ensemble confined inside a hollow-core optical fiber TAE HYUN YOON, FERESHTEH RAJABI, JEREMY FLANNERY, SREESH VENUTURUMILLI, MICHAL BAJCSY, Institute for Quantum Computing, University of Waterloo, NANO PHOTONICS AND QUANTUM OPTICS TEAM — We implement a dynamically controlled photonic bandgap¹ in an ensemble of laser cooled cesium atoms confined inside a hollow-core photonic crystal fiber (HCPCF). This photonic bandgap is induced in the ensemble by combining electromagnetically induced transparency (EIT) conditions with an off-resonant standing light wave, which in turn produces a rapid spatial modulation of the index of refraction experienced by the probe light. We investigate the formation of stationary light pulses through dynamic control of this bandgap.

¹A. Andre et al., Phys. Rev. Lett. 89, 143602 (2002)

Tae Hyun Yoon
University of Waterloo

Date submitted: 29 Jan 2017

Electronic form version 1.4