

Abstract Submitted
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Donut modes and photonic hollow fibers: a possible scheme for atom transport¹ SANDIP MITRA, Institute for Physical Science and Technology, University of Maryland, College Park, J. SMITH, N. CHATTRAPIBAN, I. ARAKELYAN, Department of Physics, University of Maryland, College Park, W.T. HILL, III, Institute for Physical Science and Technology & Department of Physics, University of Maryland, College Park — Bragg fibers are a specific class of photonic bandgap fibers that have the capacity to be optimized for low-loss transmission of “donut” modes. This ability makes these fibers attractive as possible tool for atom optics. One example would be to transport neutral atoms through harsh environments. This would be possible by co-propagating a blue-detuned donut mode with the atoms through the fiber. We have studied the transmission efficiency of “donut” Bessel and Laguerre-Gaussian modes through a fiber designed to transmit 780 nm light both experimentally and theoretically. In this poster we will describe the results and discuss the prospects for atom loading and other applications.

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