

Abstract Submitted
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All-optical 87-Rb Bose Einstein condensation in ultra-low magnetic field¹ JOSHUA HUGHES, MATTHEW WILLIAMS, CHAD FERTIG, University of Georgia, Department of Physics — We discuss recent experiments in a new, all-optical 87-Rb BEC machine in which the UHV cell and trapping optics are fully enclosed by large volume ($\sim 1m^3$) 5-layer mu-metal shield. Several novel aspects of the apparatus will be discussed, including the design and performance of the mu-metal shield, the double-MOT design and optically guided cold-atom source, and novel “scissor” dipole trap formed by two 35W, 1064nm laser beams having a dynamically tunable crossing angle. Recent results and future experiments on spinor 87-Rb condensates possible in the ultra-low magnetic noise environment of this apparatus will be discussed.

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Chad fertig
University of Georgia, Department of Physics

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