

Abstract Submitted
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Transition properties of a Bose-Einstein condensate confined by a laser in a Laguerre-Gaussian mode THOMAS AKIN, University of Oklahoma, SHARON KENNEDY, JEREMY MARZOULA, JASON ALEXANDER, ERIC ABRAHAM, University of Oklahoma — An optical dipole force trap generated by lasers in a Laguerre-Gaussian (LG) mode facilitates a means to study the Bose-Einstein condensate (BEC) vortex states. The toroidal geometry and the intrinsic orbital angular momentum of the LG beam offers an ideal environment to support vortex states. An investigation is made on an ideal gas confined by a LG mode laser. We submit theoretical studies of the transition properties for a BEC in a LG external potential, and work toward mean field effects. Experimental results of laser cooled atoms confined in LG beams created by diffractive optics will be presented.

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