

Abstract Submitted
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Laguerre-Gaussian Mode Discrimination with a Fabry-Perot Interferometer ASHLEY CARLSON, ERIC HAZLETT, Carleton College — Higher transverse modes may enable the laser trapping of atoms in a variety of different geometries. One such family of modes is the Laguerre-Gaussian modes. To create these modes, we use a Digital Micromirror Device (DMD) and a computer-generated interference pattern. This interference pattern does not create a pure mode in the laser beam profile. We employ a scanning Fabry-Perot resonator to filter the laser beam profile and clean the mode. In scanning the resonator, we characterize and optimize the laser resonator cavity. With this cavity, we see evidence of the discrimination of higher order modes. The next steps will be to lock the resonator to a specific mode via the Pound-Drever-Hall technique and to look into optimizing the interference patterns to improve the isolation of the appropriate mode.

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