Abstract Submitted
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Tunable Finesse and Beam Transformations with Coupled Cavities MARK STONE, AZIZA SULEYMANZADE, JONATHAN SIMON, University of Chicago — I will describe several related tools for use in atomic physics experiments and general laser manipulation, which rely on techniques using coupled optical cavities. The first is a tunable finesse cavity whose coupling to free space can be changed by orders of magnitude, amounting to a variable photon lifetime. Then I will demonstrate that, with the correct configuration of coupled resonators, an input Hermite-Gaussian beam can have its spatial and frequency properties drastically altered with little loss of power. These tools are easily constructed and robust to high laser powers.

Mark Stone
University of Chicago

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