Abstract Submitted
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Novel Cooling Of Ultracold Atoms Using Spatially Selective Optical Pumping JONATHAN GILBERT, JACOB ROBERTS, Colorado State University — A novel cooling technique for ultracold gases will be presented. This technique has relatively few requirements for particular properties of the ultracold gas and thus should be widely applicable. A detailed description of how the cooling technique works will be presented, along with specific predictions for the cooling of an ultracold gas of ^{87}Rb confined in an optical trap. Cooling in a simple harmonic oscillator potential, TEM (M^2 =1) potential, and TEM (M^2>1) potential were numerically simulated and the results will be presented. Recent experimental efforts have focused on optimizing the cooling technique over multiple cycles of cooling. We have observed cooling of the gas by more than 20%. Possibilities for improvement in the technique will be discussed.

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