

Abstract Submitted  
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**SelecTive**

**Optical**

**Pumping (STOP) Cooling** JONATHAN GILBERT, JACOB ROBERTS, Colorado State Univ — 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. This technique produces predicted cooling rates on the order of 100 microKelvin/s without requiring the loss of atoms. A detailed description of how the cooling technique works will be presented, along with specific predictions for the cooling of an ultracold gas of  $^{87}\text{Rb}$  confined in an optical trap. Recent experimental efforts have focused on producing a more optimal set of optical trap parameters than the first measurements of this technique that were performed in this research group, and the reasons for changing the optical trap parameters will be described. Experimental measurements of STOP cooling will be presented.

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