

Abstract Submitted
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Closed-loop stabilization of a quasi-electrostatic trap DWIGHT WHITAKER, ALEX ZYLSTRA, Pomona College — We use the signal from a solid-state infrared optical detector to control the power of a CO₂ laser, which is used to trap and cool a collection of rubidium-87 atoms. Atoms are loaded from a vapor cell MOT into a variable size QUEST produced by a single focused CO₂ laser beam. The atoms are then cooled by lowering the laser power with an acousto-optical modulator. In this poster we will discuss the effects of laser stabilization, provided by a closed-loop servo circuit between the solid-state detector and the AOM, on the temperature stability of evaporatively cooled atoms and discuss the possibility of experiments on temperature controlled, ultracold samples.

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