

Abstract Submitted
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Single-Frequency Sisyphus Cooling of Lithium in the Presence of a Dipole Trap YANPING CAI, DANIEL ALLMAN, PARTH SABHARWAL, KEVIN WRIGHT, Dartmouth — We have applied a single-frequency large-detuning Sisyphus cooling technique (originally demonstrated with ^7Li in free space: Hamilton *et al.* PRA **89** 023409) to enhance capture of ^6Li atoms in a NIR dipole trap. We report on the effectiveness of 1D and 2D Sisyphus cooling in the absence of other fields, and in the presence of crossed-beam traps up to 1 mK deep. The cooling technique is relatively insensitive to polarization, detuning, and magnetic fields. We expect to be able to enhance capture of both lithium isotopes simultaneously with a single-frequency Sisyphus beam detuned between the ^6Li D_2 and ^7Li D_1 lines.

Kevin Wright
Dartmouth

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