

Abstract Submitted
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Toward Magneto-optical Cooling of ${}^7\text{Li}$ KARL A. BURKHARDT, ALINA BLINOVA, ISAAC CHAVEZ, KEVIN MELIN, MARK G. RAIZEN, Department of Physics, University of Texas at Austin — Laser cooling, the standard approach for producing ultra-cold atoms for the past thirty years, has reached saturation in the number of ultra-cold atoms produced per second and atomic density. We report the development of an alternative method for producing ultra-cold atoms and predict that it will far-surpass laser cooling. Our approach is based on magnetic deceleration of supersonic beams. Once the atoms are brought to rest in the lab frame, we will use internal-state optical pumping and magnetic field gradients to further cool and compress the atomic cloud. This talk will discuss progress toward the physical implementation of these methods with ${}^7\text{Li}$ atoms.

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