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Novel cooling schemes for atomic strontium BENJAMIN BLOOM, SEBASTIAN BLATT, TRAVIS NICHOLSON, MATTHEW SWALLOWS, MICHAEL MARTIN, MICHAEL BISHOF, YIGE LIN, JUN YE — Due to its extremely narrow electronic transition and the decoupling between its nuclear spin from the electronic angular momentum, Sr has been featured in a number of Quantum Simulation proposals [1,2]. With the demonstrated capability in precision measurement and control from ongoing optical clock experiments, a key challenge to these quantum information experiments is the creation of high phase space density samples of both bosonic and fermionic Sr atoms at a high duty cycle. Here we report our recent progress in exploring novel cooling schemes with ^{88}Sr. Recent results in employing Optical Feshbach Resonances for turning on interactions between atoms are presented and future experiments with narrow line laser cooling are discussed.

[1] A.J. Daley et al. 2008, 101, 170504
[2] A.V. Gorshkov et al. 2009, 102, 110503

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