

Abstract Submitted
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A High Flux Cold Atomic Beam for Experiments in Strongly Coupled Cavity QED¹ BASUDEV ROY, MICHAEL SCHOLTEN, LUIS OROZCO, Joint Quantum Institute- Dept. of Physics University of Maryland, NIST- College Park, SAIJUN WU, Joint Quantum Institute- NIST, Dept. of Physics University of Maryland- Gaithersburg — We present a high flux continuous source of cold atoms for cavity QED experiments in the regime of strong coupling. A 2D+ MOT, loaded by rubidium dispensers in a dry film coated vapor cell, loads a secondary moving-molasses MOT (MM-MOT) at a rate of 1.5×10^{10} atoms/s. The MM-MOT provides a velocity tunable (3 to 10 m/s) high flux continuous beam. We direct the beam through the $64 \mu\text{m}$ waist of a high finesse optical cavity with $246 \mu\text{m}$ mirror spacing. The atom-cavity coupling rate g , cavity dissipation rate κ , and atomic decay rate γ are $(g, \kappa, \gamma)/2\pi = (8, 2, 3)$ MHz, placing the system in the strong regime. We are currently characterizing the source using the cavity QED system and will report its performance as a function of MOT parameters.

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Michael Scholten
Joint Quantum Institute- Dept. of Physics
University of Maryland, NIST- College Park

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