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**Towards the creation of few-body atomic Fock states** KIRSTEN VIERING, GABRIEL N. PRICE, DAVID MEDELLIN, JIANYONG MO, MARK G. RAIZEN, Department of Physics and Center for Nonlinear Dynamics, The University of Texas at Austin — We report on our progress towards the production of few-body Fock states of atoms. Earlier work in our group demonstrated sub-Poissonian atom statistics in a system of bosonic Rubidium atoms, in agreement with our proposed method of laser culling. An analysis of a system of fermionic Lithium atoms shows the prospect of producing an atom "on demand" with ultra-high fidelity. To this end we are building a new experimental setup using Lithium which will improve upon previous results. The current status of the experiment is discussed.

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