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Towards the creation of atomic Fock states DAVID MEDELLIN, GABRIEL PRICE, KIRSTEN VIERING, JIANYONG MO, MARK RAIZEN, University of Texas at Austin — Atomic Fock states provide ideal initial conditions to study few-body atomic physics. Recently, our group proposed and demonstrated the method of "laser culling", achieving sub-Poissonian atom number statistics in a degenerate bosonic gas. We propose a new approach using fermionic Lithium 6, where a theoretical analysis has demonstrated the prospect of producing an atom "on demand" with ultra-high fidelity. A new experimental setup is being built towards this end and the current status of the experiment is discussed.

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