

Abstract Submitted  
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**Towards quantum gas microscopy of fermions in p-bands** PETER SCHAUSS, University of Virginia — Quantum gas microscopes have taken the study of Hubbard physics in optical lattices to a new level, enabling single-site and single-atom resolved detection of strongly correlated states like Mott insulators and anti-ferromagnets. So far, these experiments have focused on the study of many-body states in the ground band of square lattices. Using lithium 6, a fermion with tunable interactions and fast tunneling due to its low mass, we plan to widen the focus of quantum gas microscopy to fermions in p-bands. Higher bands are an important ingredient in Hubbard models for real materials and lead to new effects like orbital ordering. Competition between orbital ordering and the well-known spin-ordering can lead to exotic quantum phases. On the Poster we will present future plans and the current status of the experimental setup. It was designed to obtain high reliability, a fast cycle time and improved optical access.

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