Abstract Submitted
for the DAMOP16 Meeting of
The American Physical Society

Measurement-induced control with a nondestructive quantum gas microscope[1] MINWOO JUNG, IVAYLO S. MADJAROV, JACOB RABINOWITZ, ZOE WELLNER, HUIYAO Y. CHEN, HIL F. H. CHEUNG, YOGESH SHARAD PATIL, MUKUND VENGALATTORE, Cornell University — The physics of ultracold lattice gases has expanded from understanding Hubbard models to a much broader set of questions of nonequilibrium quantum dynamics, quantum thermodynamics, manybody entanglement, etc. These studies are increasingly being enabled by the advent of quantum gas microscopy, i.e. acquiring in-situ real space information, that is gaining prominence as a very powerful technique to study lattice gases. Nonetheless, the realization of fascinating correlated manybody states requires prohibitively low temperatures and entropies, far below what can be accessed through conventional evaporative cooling. The combination of quantum gas microscopy and measurement based quantum control offers an alternate route to state preparation of lattice gases in regimes of strong correlations. In this poster, we present our ongoing work on using site resolved imaging for the preparation of correlated manybody phases.

[1]This work is supported by the ARO MURI on non-equilibrium dynamics.

Yogesh Sharad Patil
Cornell University

Date submitted: 28 Jan 2016 Electronic form version 1.4