Abstract Submitted
for the DAMOP20 Meeting of
The American Physical Society

Many-body Dynamical Localization in a Kicked Interacting Quantum Gas* ROSHAN SAJJAD, ETHAN SIMMONS, ALEC CAO, CORA FUJIWARA, DAVID WELD, University of California, Santa Barbara — The kicked rotor is a prototypical testbed for exploring quantum chaos and dynamical localization in single-particle quantum mechanics. We report experiments introducing tunable interactions into an optical-lattice-based quantum kicked rotor. Results probe the existence of a dynamical many-body localized regime, and allow detailed characterization of interaction-driven delocalization in quantum kicked rotors. *The authors acknowledge support from ARO (PECASE W911NF1410154) and NSF (CAREER 1555313)

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Date submitted: 02 Feb 2020 Electronic form version 1.4