

Abstract Submitted
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Emergent Floquet states in strongly-driven optical lattices¹ ZACHARY GEIGER, KURT FUJIWARA, KEVIN SINGH, RUWAN SENARATNE, SHANKARI RAJAGOPAL, MIKHAIL LIPATOV, DAVID WELD, University of California, Santa Barbara — We report on progress towards experimental observation of an emergent state of matter using ultracold lithium in an amplitude-modulated optical lattice. In the presence of very strong (sign-changing) modulation in a specific frequency range, a dynamically stable state emerges which can be understood as a direct quantum-mechanical analogue of the classical Kapitza pendulum. Realization of such a state provides an experimental context in which the effects of tunneling and tunable interactions on Floquet phases of matter can be controllably explored.

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