

Abstract Submitted
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Dissipative dynamics of interacting Bosons JIAN JIANG, CHRISTIAN BAALS, JENS BENARY, HERWIG OTT, Department of Physics and Research Center OPTIMAS, TU Kaiserslauter, 67663, Kaiserslautern, Germany — We study the non-equilibrium dynamics of ultracold Bose gases using a scanning electron microscope. In the first part of this poster, we report an experiment that demonstrates coherent perfect absorption (CPA) for nonlinear matter waves using an atomic Bose-Einstein condensate (BEC) of Rb-87 in a one-dimensional optical lattice with an absorbing lattice site. [1] This absorption is tailored via an electron beam which locally induces losses. In the second part, we introduce our updated experimental setup in which an objective with high numerical aperture is embedded. In this setup, an arbitrary optical potential can be projected onto a BEC through the objective such that interesting topics, e.g. dark solitons generated by phase imprinting and stabilized by local dissipation, quantum transport in ultracold atoms [2], can be studied. References [1] Sci. Adv. 4, eaat6539 (2018) [2] Nature Phys. 11, 998-1004 (2015)

Jian Jiang
Department of Physics and Research Center OPTIMAS, TU Kaiserslauter

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