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Equilibrating Dynamics in Quenched Bose Gases KATHY LEVIN, ADAM RANCON, University of Chicago — Recent interaction quench experiments in cold bosonic gases are challenging our understanding of out-of-equilibrium dynamics of quantum systems. In particular, the cross-over between short-time (strongly out-of-equilibrium) and long-time equilibration (to a (meta-)stable state) is a complicated problem that needs to be addressed in order to understand the multiple time scales (associated with oscillations, equilibration, etc.), and their momentum dependence in these experiments. In this talk, we present a model that simulates the out-of-equilibrium dynamics of a condensed Bose gas, which importantly allows for the ultimate equilibration of the system via a coupling to a bath [Phys. Rev. A (88) 031601 (2013)]. We show why (as in quench experiments) large k, high energy states equilibrate more rapidly than those at small k. In this context we discuss the implications for calculations and measurements of the Tan contact. We finally address the question of how the intermediate time dynamics can, in principle, reflect the presence or absence of a condensate.

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