MAR06-2005-020032

Abstract for an Invited Paper
for the MAR06 Meeting of
the American Physical Society

Superfluid-Insulator Transition in a Moving System of Interacting Bosons

ANATOLI POLKOVNIKOV, Boston University

Cold atomic systems with their high tunability and nearly perfect isolation from environment give an exciting possibility to address non-equilibrium problems, where both quantumand dynamic effects are important. In this talk I describe a moving system of interacting bosons in a periodic optical lattice potential and generalize the conventional superfluid-Mott insulator transition to this highly non-equilibrium situation. I will discuss implications of our results to recent and future experiments.