

MAR16-2015-001401

Abstract for an Invited Paper
for the MAR16 Meeting of
the American Physical Society

Non-equilibrium dynamics of a quantum gas in a box

ZORAN HADZIBABIC, University of Cambridge

For the past two decades harmonically trapped ultracold atomic gases have been used with great success to study both equilibrium and non-equilibrium many-body physics in a flexible experimental setting. Recently, we achieved the first atomic Bose-Einstein condensate in an essentially uniform potential of an optical-box trap¹, which has opened new possibilities for closer connections with other many-body systems and the theories that rely on the translational symmetry of the system. I will present our recent experiments on non-equilibrium phenomena in this system, including the study of the Kibble-Zurek dynamics of spontaneous symmetry breaking in a quenched homogeneous gas².

¹A. L. Gaunt et al., Phys. Rev. Lett. **110**, 200406 (2013)

²N. Navon et al., Science **347**, 167 (2015)