



The Abdus Salam
International Centre for Theoretical Physics



Conference on Research Frontiers in Ultra-Cold Atoms
ICTP, Trieste, 4 - 8 May 2009

Dynamics of ultra-cold atoms in two-dimensional lattices

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Abstract:

We will describe experiments with arrays of one-dimensional quantum degenerate gases in a range of situations, from the mean-field regime to the strongly correlated regime, with and without coupling among the tubes, and in and out of equilibrium. These experiments deal with self-trapping, the onset of thermalization, and the limits of adiabaticity when a system's dimension is changed.