

abstract

ANALYSIS MATH-PHYSICS SEMINAR

Topic:

Speaker:

Affiliation:

Date:

Time/Room:

We consider a system of trapped spinless bosons interacting with a repulsive potential and subject to rotation. In the limit of rapid rotation and small scattering length, we show that the ground state energy converges to that of a simplified model Hamiltonian with contact interaction projected onto the Lowest Landau Level. This effective Hamiltonian models the bosonic analogue of the Fractional Quantum Hall Effect (FQHE). For a fixed number of particles, we also prove convergence of states; in particular, in a certain regime we show convergence towards the bosonic Laughlin wavefunction. This is the first rigorous justification of the effective FQHE Hamiltonian for rapidly rotating Bose gases. We review previous results on this effective Hamiltonian and outline open problems. (This is joint work with M. Lewin.)