SEMINAR

Wednesday, 12th of March 2014 at 11:30

LPTMS, Paris-Sud University

Abstract

Breathing modes of one-dimensional trapped BEC
 One-dimensional ultracold atomic gas of bosons is considered. Frequencies of low-lying excitations are calculated for the parameters of the model relevant for the recent experiment from Innsbruck group [Science 325, 1224 (2009)]. Perturbative methods are combined with the exact Bethe Ansatz solution for the model. Analysis of results are made for both the weak coupling and the Tonks-Girerdeau regimes. Analytical calculations are complement with the results from the quantum Monte Carlo simulations. On the example of the two-particle system compared different methods of calculation of the breathing mode. Theoretical results confronted with data from experiment.