



Kolloquium

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Measuring density fluctuations in a very elongated Bose gas

This seminar will present the last results of the atom chip experiment in Orsay. We have measured density fluctuations in a quasi one dimensional Bose gas at thermal equilibrium in an elongated harmonic trap. This measurement holds information on the density-density correlation function of the atomic sample. At low atomic density, we observe an excess of fluctuations compared to the shot noise level expected for uncorrelated atoms. The measured excess is in good agreement with the expected bunching for an ideal Bose gas. This is a direct measurement of the enhanced probability of finding two identical bosons at the same place that arises from the exchange symmetry of their wavefunction. At high density, the measured fluctuations are strongly reduced compared to the ideal gas case. We attribute this reduction to repulsive interatomic interactions. We compare the data with a calculation in the quasi-condensate regime.

Wann? Donnerstag, 10.11.2005, 17:15 Uhr

Wo? Universität Tübingen, Hörsaalzentrum auf der Morgenstelle, Raum N1