

BERNOULLIS TAFELRUNDE

GRADUATE STUDENT SEMINAR

Thursday, 21 March 2019, 12:15-13:00

Alte Universität, Hörsaal -101

SEVERIN SCHRAVEN

Universität Zürich

Bogoliubov Theory in the Gross-Pitaevskii Limit

ABSTRACT

The aim of this talk is to explain how the low-energy spectrum of the Hamilton operator

$$(1) \quad H_N = \sum_{j=1}^N -\Delta_{x_j} + \kappa \sum_{1 \leq i < j \leq N} N^2 V(N(x_i - x_j))$$

on $L^2([0; 1]^{\times 3N})$ behaves for $N \rightarrow \infty$. We will see the main ideas that led to an explicit expression for the asymptotic of the smallest eigenvalues, following the paper "Bogoliubov Theory in the Gross-Pitaevskii Limit" by C. Boccato, C. Brennecke, S. Cenatiempo and B. Schlein. We will also discuss work in progress aimed at extending these results to gases trapped by external potentials.