

Titel: Bogoliubov approximation and many-body quantum fluctuations

Speaker: Phan Thanh Nam

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Abstract:

We will discuss the validity of Bogoliubov approximation in describing the evolution of weakly interacting Bose gases. To the leading order, it is well-known that the Bose-Einstein condensation is stable under the Schroedinger flow and the condensate is governed by the Gross-Pitaevskii (or Hartree) equation. We will come to the next order and show that the fluctuations around the condensate can be effectively described by quasi-free states, as predicted by Bogoliubov theory. The talk is based on joint works with Mathieu Lewin, Benjamin Schlein and Marcin Napiórkowski.
