

Condensed Matter - HW 9 :: BEC & quasiparticles

PHSX 545

Problem 1

Show that there is no BEC in two-dimensional ideal gas.

Problem 2

Consider a sudden change of the scattering length in Bose gas from f_0 to F_0 . Both interactions are small. Within Bogoliubov theory, describe dynamics of the system.

Problem 3

Using the phonon-roton model of ^4He spectrum, find the quasiparticle heat capacity and density of the normal component at low temperature.