

5. Bose Einstein Condensation (theory).....2 lectures (1hr 30m each)

Speakers: Prof. J. K. Bhattacharjee (SNBCBS) & Prof. K. Sengupta (IACS)

(a) Theory

Quantum Statistics of Bosons

BEC in ideal gases

Role of interactions in BEC

Mean field approximation

GP equation

Condensate nucleation (phase transition)

Oscillations of BEC in magnetic and other traps

Stability of condensates

Relation of superfluidity and superconductivity and BEC in dilute gases

Phase of a condensate and its evolution

Vortices in BEC's