

# **BOGOLUBOV THEORY AND THE BOSE GAS**

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Some of the topics that I will try to cover are:

1. Quantum many-body Hamiltonians and their ground states
2. Particle statistics
3. Grand canonical formalism and Fock space
4. Second quantization
5. One-parameter density matrices
6. Bogolubov transformations
7. Quasi-free states
8. Quadratic Hamiltonians
9. Hartree-Fock and Bogolubov variational models
10. Application to the 2-component charged Bose gas
11. Application to the dilute gas and the LHY formula