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Bogoliubov theory for Bose and Fermi gases

Abstract: the lectures will start with quasi-free states for fermions and bosons, quadratic Hamiltonians, Bogolubov diagonalization again for fermions and for the more difficult case of bosons, and entropy of quasi-free states. This will lead to the definition of the Bogolubov variational model, which is arrived at by restricting to quasi-free states. The particular case of translation invariant models will be discussed. This will lead to the BCS model for Fermions and the Bogolubov model for Bosons. The lecture will discuss the Bose case in more details.