

Abstract

A micro-canonical ensemble for an assembly of bosons and fermions is considered in which the number of particles, internal energy and volume are kept constant. A statistical distribution model, which is fermion dominated and where bosons and fermions interact in pairs, is developed. The partition function is derived. Macroscopic thermodynamic quantities such as entropy, internal energy and specific heat are obtained in terms of the partition function. The model equations are applied to a mixture of liquid helium-3 and liquid helium-4 atoms.