

We have an assembly of  $N$  weakly interacting particles in a volume  $V$ , in thermal equilibrium at a temperature  $T$ .

Are the particles distinguishable?

No

Yes

Bosons or Fermions?

Bosons

Fermions

Use Bose-Einstein statistics:

$$n_k = \frac{1}{e^{\beta(E_k - \mu)} - 1}.$$

Use Fermi-Dirac statistics:

$$n_k = \frac{1}{e^{\beta(E_k - \mu)} + 1}.$$

Use Boltzmann statistics:

$$Z = \sum_k e^{-\beta E_k}.$$