Summary of lecture 12

- We derived the familiar results for a classical ideal gas (by first deriving the grand partition function):

$$pV = NkT \qquad C_p = \frac{5}{2}Nk$$

$$S = Nk\left(\frac{5}{2} + \ln\frac{n_Q}{n}\right)$$

- Fermi gases: the conduction electrons in a metal at room temperature are sensitive to quantum effects, wheras quantum effects only become important in helium-3 at very low temperatures ~1K.