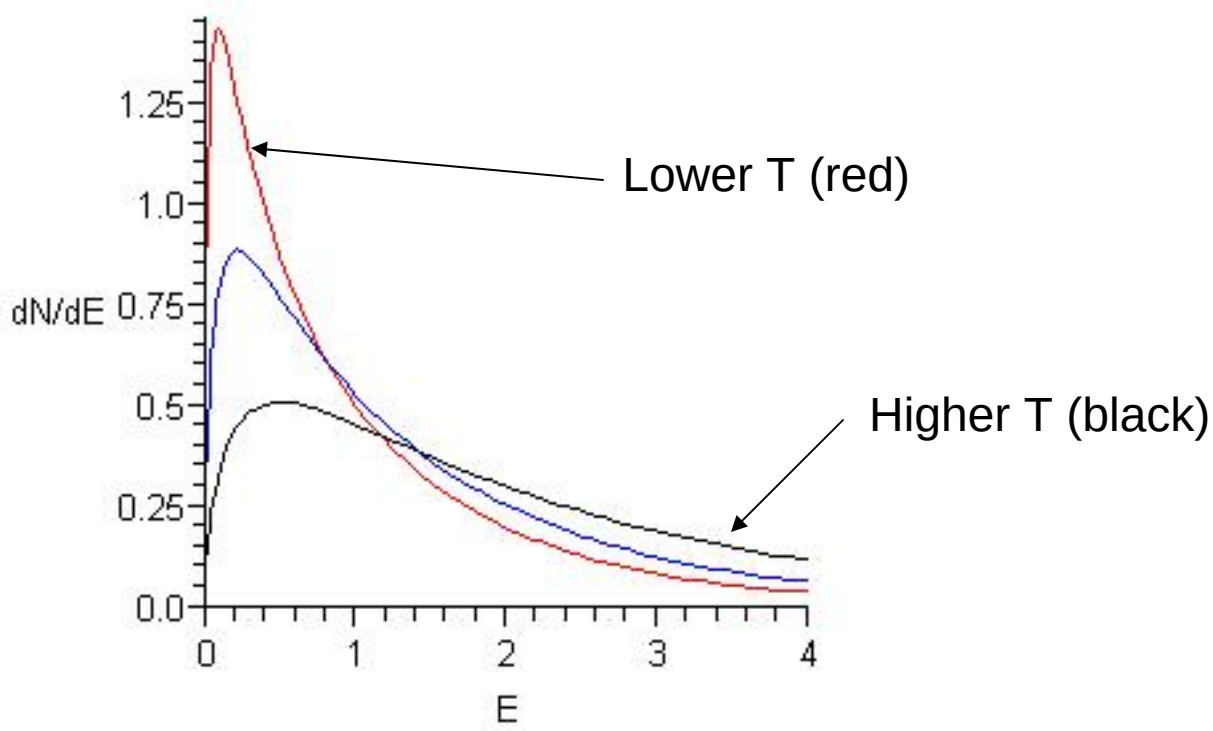
$$\frac{dN}{dE} = \frac{dn}{dE}\,\frac{1}{\exp((E-\mu)/kT)-1} \propto \frac{\sqrt{E}}{\exp((E-\mu)/kT)-1}$$



As the temperature *falls*, so μ must *increase*, i.e. it becomes less negative, in order that the area under the curves should remain fixed (the area is the number of bosons N).