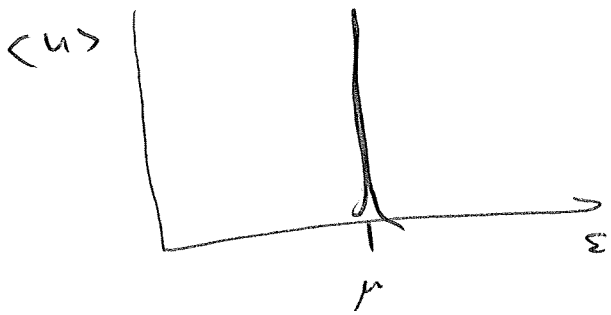
BOSE - EINSTEIN DISTRIBUTION

$$\langle n \rangle = \frac{1}{e^{(\varepsilon - \mu)/kT} - 1}$$

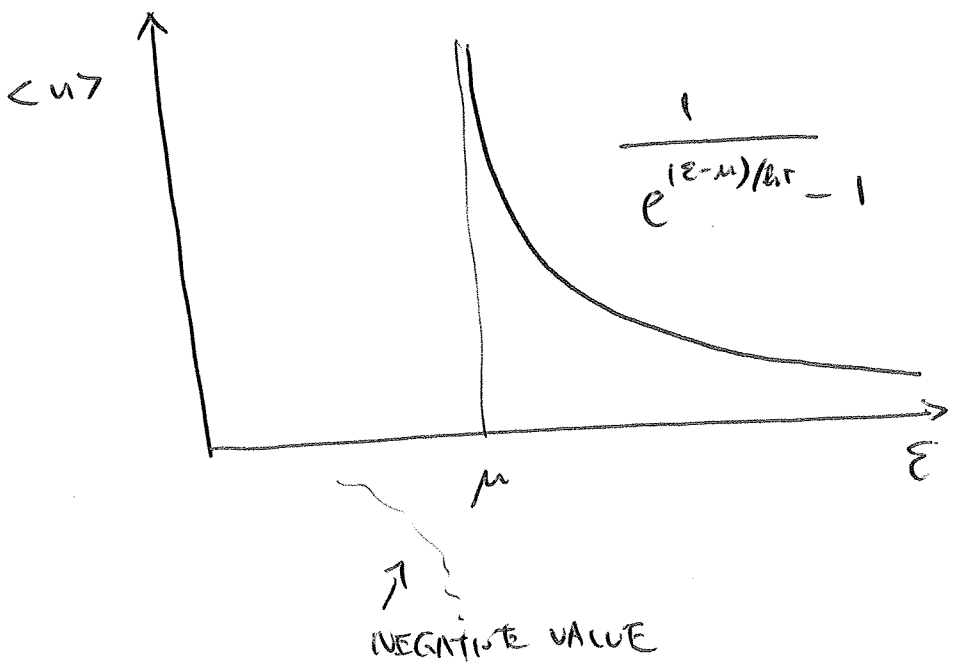
IF $T \to 0$ $\quad \langle n \rangle = \frac{1}{e^{\infty}}$

OR UNLESS $\varepsilon = \mu$

$\langle n \rangle = 0$



EVERY BODY WILL BE IN THE LOWEST ENERGY STATE



Bosons (spin zero)

$$D(\varepsilon) = \frac{2}{\sqrt{\pi}} \left(\frac{2\pi m}{h^2}\right)^{3/2} V \sqrt{\varepsilon}$$

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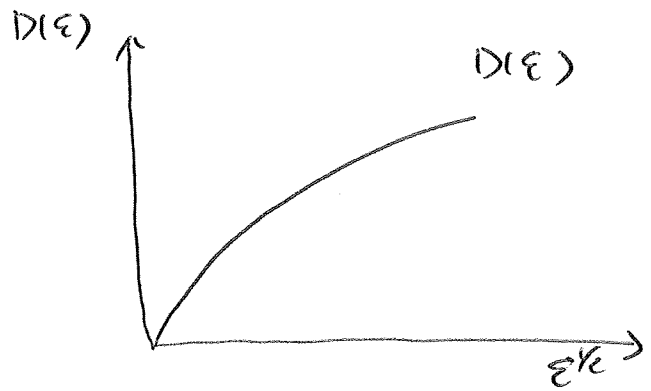
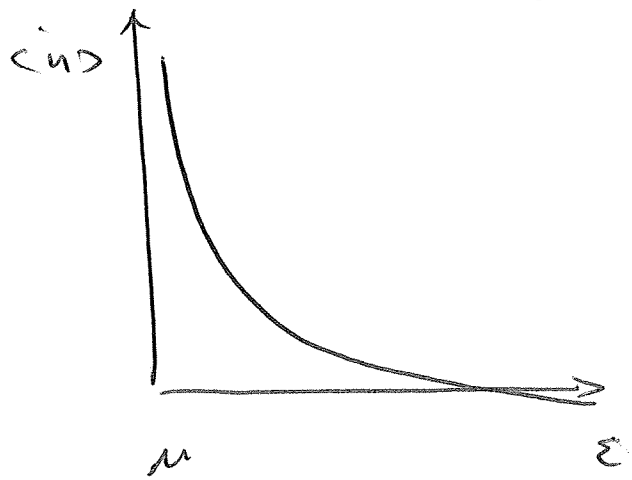
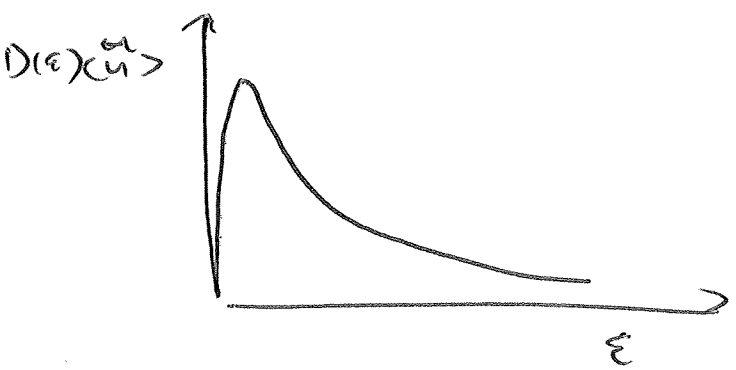


μ =





$$\frac{\partial}{\partial \mu} = \frac{\rho \ell}{\ell^{3/2} \ell^{1/2}} \quad e^{\rho \theta \mu}$$

$$g(\varepsilon) = \frac{2}{\sqrt{\pi}} \left(\frac{2\pi m}{h^2} \right)^{3/2} V \sqrt{\varepsilon}$$

$$N = \frac{2}{\sqrt{\pi}} \left(\frac{2\pi m}{h^2} \right) V \int_0^\infty \frac{\sqrt{\varepsilon}\, d\varepsilon}{e^{\varepsilon/kT} - 1}$$

$$x = \frac{\varepsilon}{kT}$$

$$N = \frac{2}{\sqrt{\pi}} \left(\frac{2\pi m k T}{h^2} \right)^{3/2} V \underbrace{\int_0^\infty \frac{\sqrt{x}}{e^x - 1} dx}_{2.612}$$

$$N = 2.612 \left(\frac{2\pi m k T}{h^2} \right)^{3/2} V$$
