③

$$\beta n^{2/D} = \left(\Gamma(D/2+1) \times \frac{\mathbb{E}m}{\mathbb{E}N}\right)^{2/D} n^{2/D}$$

$\beta n^{2/D}$

$\boxed{\mu}$

$$\beta n^{2/D} \sim \exp(1)$$

$$\left(\cancel{\mathbb{E}}\left(\Gamma(D/2+1)\frac{1}{\mathbb{E}n}\right)^{2/D} n \sim \exp 1$$

ie $$\mathbb{E}[n^{2/D}] = \frac{1}{\left(\Gamma(D/2+1)\,\mathbb{E}n\right)^{2/D}}$$

~~EQ~~

EQ3) $$\mathbb{E}N = \frac{S e^{-u^2/2}}{u\sqrt{2\pi}}$$

$$\mathbb{E}n \approx \frac{\mathbb{E}N}{\mathbb{E}m} = \left(\frac{\cancel{S e^{-u^2/2}}}{u\sqrt{2\pi}}\right) \times \frac{1}{\cancel{S}} \times (2\pi)^{\frac{D+1}{2}} W^D u^{1-D} \cancel{e^{u^2/2}}$$

$$= \frac{(2\pi)^{D/2} W^D}{u^D}$$

← alternative justification for this term!