1 ebatze-modoa

Sistema baten eta bero/partikula-iturri baten arteko oreka

$$N_r + N'_r = N^{(0)} = \text{konstante}$$

$$E_s + E'_S = E^{(0)} = \text{konstante}$$

$$\frac{N_r}{N^{(0)}} = \left(1 - \frac{N'_r}{N^{(0)}}\right) \ll 1$$

$$\frac{E_s}{E^{(0)}} = \left(1 - \frac{E'_s}{E^{(0)}}\right) \ll 1$$

$$P_{r,s} \propto \Omega'(N^{(0)} - N_r, E^{(0)} - E_s)$$

$$\begin{aligned}
\ln \Omega'(N^{(0)} - N_r, E^{(0)} - E_s) &= \ln \Omega'(N^{(0)}, E^{(0)}) + \\
&+ \left(\frac{\partial \Omega'}{\partial N'}\right)_{N'=N^{(0)}} (-N_r) + \left(\frac{\partial \Omega'}{\partial E'}\right)_{E'=E^{(0)}} (-N_r)(-E_s) + \cdots \\
&\simeq \ln \Omega'(N^{(0)}, E^{(0)}) + \frac{\mu'}{k_B T'} N_r - \frac{1}{k_B T'} E_s
\end{aligned}$$

$$P_{r,s} \propto \exp\left(-\alpha N_r - \beta E_s\right)$$

$$\alpha = -\frac{\mu}{k_B T}, \qquad \beta = \frac{1}{k_B T}$$

$$P_{r,s} = \frac{\exp(-\alpha N_r - \beta E_s)}{\sum_{r,s} \exp(-\alpha N_r - \beta E_s)}$$