

$$dE = T dS - P dV + \mu dN \quad (1)$$

$$dS = \frac{1}{T} dE + P dV - \mu dN \quad (2)$$

$$\frac{\partial S}{\partial E} = T^{-1} \quad \frac{\partial S}{\partial V} = P \quad \frac{\partial S}{\partial N} = -\mu \quad (3)$$