

$$\Delta S_{\text{oson}} = \Delta S_{\text{sis}} + \Delta S_{\text{ing}} \quad \begin{cases} \text{IE} > 0 \\ \text{IG} = 0 \end{cases}$$

$$T, p = \text{Kte} \quad Q_{\text{oson}} = Q_{\text{sis}} + Q_{\text{ing}} = 0 \Rightarrow Q_{\text{ing}} = -Q_{\text{sis}}$$

$$T, p = \text{Kte}$$

$$Q_{\text{sis}} = \Delta H_{\text{sis}}$$

$$Q_{\text{ing}} = T \Delta S_{\text{ing}} \Rightarrow \Delta S_{\text{ing}} = \frac{Q_{\text{ing}}}{T}$$

$$\Delta S_{\text{ing}} = -\frac{\Delta H_{\text{sis}}}{T}$$

$$\Delta S_{\text{oson}} = \Delta S_{\text{sis}} - \frac{\Delta H_{\text{sis}}}{T} \Rightarrow \Delta S_{\text{oson}} = \frac{1}{T} (T \Delta S_{\text{sis}} - \Delta H_{\text{sis}})$$

$$T \Delta S_{\text{oson}} = T \Delta S_{\text{sis}} - \Delta H_{\text{sis}}$$

$$-T \Delta S_{\text{oson}} = -T \Delta S_{\text{sis}} + \Delta H_{\text{sis}} \\ = \Delta H_{\text{sis}} - T \Delta S_{\text{sis}}$$

● definitsioon: $G = H - TS$

$$T, p = \text{Kte} \quad \Delta G = \Delta H - T \Delta S$$

$$\Delta G = -T \Delta S_{\text{oson}}$$

- ① oskama den printsiipi ehtemala ristumisen propiäetelkin sätik oal danteke
- ② printsiipi ehtemala translatsatu dugu printsiipi oskama $\Delta S_{\text{oson}} > 0$ maksimumis, seelast baldintum, minimum

③ ideia : ΔG da lam maksimumis et mekaniika / lam et mekaniika maksimumis

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Atkins

$$dG = dH - T dS$$

$$dG = dU + p dV - T dS$$

$$dU = \delta W + \delta Q$$

$$T = \text{Kte}$$

$$p, T = \text{Kte}$$

$$dG = \delta W + \delta Q + p dV - T dS$$

$$\delta W = -p_{\text{ex}} dV + \delta W'$$

$$dG = -p_{\text{ex}} dV + \delta W' + \delta Q + p dV - T dS$$

IG

$$* p_{\text{ex}} = p \Rightarrow -p_{\text{ex}} dV + p dV = 0$$

$$\delta Q = -T dS$$

$$dG = \delta W'$$

④ ideia : interpretatsio mikroskoopikasa (fotoaparaat dapsena)