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$A \rightleftharpoons A^+ + e^-$ $\qquad (\varepsilon = -\varepsilon_0)$

$$\mu_A(N_0 - N) = \mu_{A^+}(N) + \mu_{e^-}(N)$$ תנאי ש"מ

$$\mu_A(N) = T \ln\left(\lambda_A^3 \frac{N}{V} e^{-\varepsilon_0/T}\right)$$

spin trivially modifies prefactor

define $x = N/N_0$, $n_0 = N_0/V$

$n_0 \lambda_A^3 \ll 1 \Rightarrow T_0 = n_0^{2/3}/m_A$ קלאסיות ל-A

$$\frac{x^2}{1-x} = \frac{1}{n_0 \lambda_e^3} e^{-\varepsilon_0/T}$$ משוואת ש"מ

$x \approx \text{sqrt}[\ldots]$

$x \ll 1 \Rightarrow n_0 \lambda_e^3 \gg e^{-\varepsilon_0/T}$

$n_e \lambda_e^3 \ll 1 \Rightarrow n_0 \lambda_e^3 \ll e^{\varepsilon_0/T}$ קלאסיות ל-e

satisfied above T_0 if $n_0 \ll \left[(m_A \varepsilon_0)/\log(m_A/m_e)\right]^{3/2}$

$$\mu_e(N) = \frac{1}{2m_e}\left(3\pi^2 \frac{N}{V}\right)^{2/3}$$ zero T approx

$$\frac{x}{1-x} = e^{-\frac{\varepsilon_0 + \mu_e(x)}{T}}$$ משוואת ש"מ

[if electrons were Bosons $\mu_e = 0$]

approx equation:

$$x = \exp\left[-\frac{\varepsilon_0}{T} - \text{factor}\cdot\left(n_0 \lambda_e^3 x\right)^{2/3}\right]$$