$\nu^{(0)} = -1,\ X_{\bar{I}}^{(0)} = 3,\ X_{\bar{II}}^{(0)} = -1,\ X_{\bar{III}}^{(0)} = -10,\ X_{\bar{IV}}^{(0)} = -20\ X_{\bar{V}}^{(0)} = -35$

$$F(p) = 7242 \cdot \frac{p_{нап}}{T_{нап}} - 2\int_0^{z_1} n_T^*(T(z), p)\, z\, dz = 0$$

$\nu^{(0)},\ X_i^{(0)}$

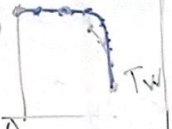
1-я часть

$$n_T^* = 7242 \cdot \frac{p^0}{T},$$

2-я часть.

$$n_i^* = n_i \cdot 10^{-18},\quad n_e^* = n_e \cdot 10^{-18}$$

$$X_i = \ln n_i^*,\quad \nu = \ln n_e^*$$



$$\ln\left(\frac{n_e^* \cdot n_{\bar{II}}^{x}}{n_{\bar{I}}^*}\right) = \ln K_1(T)$$

$$\nu + X_{\bar{II}} - X_{\bar{I}} = \ln K_1 \quad (1)$$

$$\nu + X_{\bar{III}} - X_{\bar{II}} = \ln K_2 \quad (2)$$

$$\vdots \quad (4)$$

$$e^{\nu} = \sum_{i=\bar{II}}^{\bar{V}} z_i e^{X_i} \quad (5)$$

$$\frac{p \cdot 7242}{T} = e^{\nu} + \sum_{i=\bar{I}}^{\bar{V}} e^{X_i} - \alpha \quad (6)$$

$\nu,\ X_{\bar{I}},\ X_{\bar{II}},\ X_{\bar{III}},\ X_{\bar{IV}},\ X_{\bar{V}}$

$$T(z) = T_0 + (T_w - T_0) z^m$$

$$n_T^* = \sum_{i=\bar{I}}^{\bar{V}} n_i^*$$

$$K_i = 2 \cdot 2{,}415 \cdot 10^{-3} \frac{Q_{i+1}(T)}{Q_i(T)} T^{3/2} e^{-\frac{(E_i - \Delta E_i)\cdot 11603}{T}}$$

$$\Delta E_i = 8{,}61 \cdot 10^{-5} \cdot T \cdot \ln \frac{\left(1 + z_{i+1}^2 \frac{\Gamma}{2}\right)\left(1 + \frac{\Gamma}{2}\right)}{1 + z_i^2 \frac{\Gamma}{2}}$$

$$\alpha = 0{,}285 \cdot 10^{-11} (\Gamma \cdot T)^3$$

$$\Gamma^2 = 5{,}87 \cdot 10^{10} \frac{1}{T^3}\left[\frac{e^{\nu}}{\left(1 + \frac{\Gamma}{2}\right)} + \sum_{i=\bar{II}}^{\bar{V}} \frac{e^{X_i} \cdot z_i^2}{1 + z_i^2 \frac{\Gamma}{2}}\right] (7)$$

Задача Т и р.

$$\Delta\nu^{(s+1)} + \Delta X_{\bar{II}}^{(s+1)} - \Delta X_{\bar{I}}^{(s+1)} = -\left(\nu + X_{\bar{II}} - X_{\bar{I}} - \ln K_1\right)$$

$$\begin{pmatrix} \Delta\nu & \Delta X_{\bar{I}} & \Delta X_{\bar{II}} & \Delta X_{\bar{III}} & \Delta X_{\bar{IV}} & \Delta X_{\bar{V}} \\ 1 & -1 & 1 & 0 & 0 & 0 \\ 1 & 0 & -1 & 1 & 0 & 0 \\ \vdots & & & & & \\ e^{\nu} & -z_i e^{X_{\bar{I}}} & \cdots & & & \end{pmatrix} \begin{pmatrix} \Delta\nu \\ \vdots \\ \Delta X_{\bar{V}} \end{pmatrix} = \begin{pmatrix} \\ \\ \\ \\ \\ \end{pmatrix}$$

$$\left|\frac{\Delta\nu}{\nu}\right| < \varepsilon = 10^{-4}$$

$$\left|\frac{\Delta X_i}{X_i}\right| < \varepsilon$$