$$\varphi = \sum_{i=1}^{N} \varphi_i, \qquad (1)$$

$$\varphi_i = (n_i - 1)\left(\frac{1}{r_i'} - \frac{1}{r_i}\right) = (n_i - 1)\, K_i, \qquad (2)$$

$$\frac{1}{s'} - \frac{1}{s} = \varphi, \qquad (3)$$

$$\delta s_\lambda' = s'(\lambda + \mathrm{d}\lambda) - s'(\lambda)$$

$$\delta s_\lambda' = m^2 \delta s_\lambda - s'^2 \mathrm{d}\varphi = m^2 \delta s_\lambda - s'^2 \sum_{i=1}^{N} K_i \mathrm{d}n_i = m^2 \delta s_\lambda - s'^2 \sum_{i=1}^{N} \frac{\varphi_i(\lambda_0)}{\nu_i}, \qquad (4)$$

$$\nu_i = \frac{n_i(\lambda_0) - 1}{\mathrm{d}n_i} = \frac{n_i(\lambda_0) - 1}{n_i(\lambda + \mathrm{d}\lambda) - n_i(\lambda)}, \qquad (5)$$

$$\nu(\lambda_d) = \nu_d = \frac{n_d - 1}{n_F - n_C}, \quad P_\lambda = \frac{n_F - n_\lambda}{n_F - n_C}. \qquad (6)$$

$$\delta s_\lambda' = m^2 \delta s_\lambda - s'^2 \sum_{i=1}^{N} \frac{\varphi_i}{\nu_i} P_{\lambda i}, \qquad (7)$$

$$\delta s_\lambda' = s_F' - s_\lambda',\ \delta s_\lambda = s_F - s_\lambda,\ \varphi_i = \varphi_i(\lambda_d)$$

$$\nu_i = \nu_i(\lambda_d).$$

$$s' = f'(1 - m),$$

$$f'$$

$$\delta s_\lambda' = m^2 \delta s_\lambda - f'^2 (1 - m)^2 \sum_{i=1}^{N} \frac{\varphi_i}{\nu_i} P_{\lambda i}. \qquad (8)$$

$$\delta s_\lambda' = -f'^2 \sum_{i=1}^{N} \frac{\varphi_i}{\nu_i} P_{\lambda i}. \qquad (9)$$

$$(\delta s_\lambda' = 0)$$

$$\lambda \in \left\langle \lambda_{\min}, \lambda_{\max} \right\rangle,$$

$$\sum_{i=1}^{N} \frac{\varphi_i}{\nu_i} P_{\lambda i} = 0. \qquad (10)$$

φ_i

$$\mathbf{Af} = \mathbf{b}, \qquad (11)$$

$$\mathbf{A} = \begin{pmatrix} 1 & 1 & 1 \\ P_{\lambda_1 1}/\nu_1 & P_{\lambda_1 2}/\nu_2 & P_{\lambda_1 3}/\nu_3 \\ P_{\lambda_2 1}/\nu_1 & P_{\lambda_2 2}/\nu_2 & P_{\lambda_2 3}/\nu_3 \\ \dots & \dots & \dots \\ P_{\lambda_M 1}/\nu_1 & P_{\lambda_M 2}/\nu_2 & P_{\lambda_M 3}/\nu_3 \end{pmatrix}, \quad \mathbf{f} = \begin{pmatrix} \varphi_1 \\ \varphi_2 \\ \varphi_3 \end{pmatrix}, \quad \mathbf{b} = \begin{pmatrix} \varphi \\ 0 \\ 0 \\ \dots \\ 0 \end{pmatrix},$$

$\lambda_1, \lambda_2, \dots, \lambda_M$

$\lambda_1 = \lambda_C,$

$\lambda_2 = \lambda_d,$

$\lambda_3 = \lambda_g,$

$\lambda_4 = \lambda_h$

$\lambda_5 = \lambda_r,$

$$\overline{\mathbf{f}} = \mathbf{XA}^{\mathrm{T}}\mathbf{b}, \qquad (12)$$

$\mathbf{A}^{\mathrm{T}}$

$\mathbf{X} = (\mathbf{A}^{\mathrm{T}}\mathbf{A})^{-1}$

$$\mathbf{e} = \mathbf{b} - \mathbf{AXA}^{\mathrm{T}}\mathbf{b}. \qquad (13)$$

$$\mathbf{Af} = \mathbf{b},\ \mathbf{Cf} = \mathbf{c}, \qquad (14)$$

$\mathbf{C} = (1, 1, 1)$

$\mathbf{c} = (\varphi).$

$$\hat{\mathbf{f}} = \overline{\mathbf{f}} - \mathbf{XC}^{\mathrm{T}}(\mathbf{CXC}^{\mathrm{T}})^{-1}(\mathbf{C}\overline{\mathbf{f}} - \mathbf{c}). \qquad (15)$$

$$\Delta s'_\lambda = (\delta s'_\lambda - \delta s'_d) \le T,$$

ΔW

ΔW_λ

$\Delta s'_\lambda,$

$$\Delta W_\lambda = \frac{\Delta s'_\lambda}{8F^2} < \frac{\lambda}{4}, \qquad (16)$$

$F = F_0(1 - m / m_P)$

$F_0 = f' / D$

$$\Delta s'_\lambda < 2\lambda F^2. \qquad (17)$$

$\Delta s'_F < 0,00097\, F^2$

$\Delta s'_C < 0,0013\, F^2.$

$(\Delta s'_\lambda)_{\max}$

$(\Delta s'_\lambda)_{\max} < F^2 / 1000,$

$\lambda \in \left\langle \lambda_F, \lambda_C \right\rangle.$

$$\varphi_1 + \varphi_2 = \varphi,\ \sum_{i=1}^{2} \frac{\varphi_i}{\nu_i} = 0,\ \sum_{i=1}^{2} \frac{\varphi_i}{\nu_i} P_{di} = 0, \qquad (18)$$

$\nu_i = \nu_i\left(\lambda_d\right)$

P_{di}

$$P_d = \frac{n_F - n_d}{n_F - n_C}. \qquad (19)$$

$P_{d1} = P_{d2}$

$$\varphi_1 = \frac{\nu_1}{\nu_1 - \nu_2}\varphi,\ \varphi_2 = \varphi - \varphi_1. \qquad (20)$$

$$S_\mathrm{I} = \sum_{i=1}^{N} a_i \rho_i^2 - 2b_i\rho_i + c_i,\ S_\mathrm{II} = \sum_{i=1}^{N} e_i\rho_i - b_i. \qquad (21)$$

$$a_i = \frac{n_i + 2}{n_i}\varphi_i,\ e_i = \frac{n_i + 1}{n_i}\varphi_i,\ \xi_1 = 1/s + \varphi_1/2,\ \xi_{i+1} = \xi_i + (\varphi_i + \varphi_{i+1})/2,$$

$$b_i = \varphi_i\xi_i,\ c_i = \left[\frac{n_i\varphi_i}{2(n_i - 1)}\right]^2 \varphi_i,\ \rho_i = \frac{1}{2}\left(\frac{1}{r_i} + \frac{1}{r'_i}\right) - \xi_i, \qquad (22)$$

$\rho_i,$

r_i

r'_i

$$\frac{1}{r_i} = \rho_i + \xi_i + \frac{\varphi_i}{2(n_i - 1)},\ \frac{1}{r_i'} = \rho_i + \xi_i - \frac{\varphi_i}{2(n_i - 1)}, \tag{23}$$

$$\rho_1^2 - 2\alpha\rho_1 + \beta = 0,\ \rho_2 = \frac{b_1 + b_2 + S_{II} - e_1\rho_1}{e_2}, \tag{24}$$

$$\alpha = \frac{a_2 e_1 (b_1 + b_2 + S_{II}) + e_2 (b_1 e_2 - b_2 e_1)}{a_1 e_2^2 + a_2 e_1^2},$$

$$\beta = \frac{a_2 (b_1 + b_2 + S_{II})^2 - 2 b_2 e_2 (b_1 + b_2 + S_{II}) + e_2^2 (c_1 + c_2 - S_I)}{a_1 e_2^2 + a_2 e_1^2}. \tag{25}$$

$(s = \infty)$,

$(f' = 1\,\mathrm{mm})$.

$|\varphi_{i\max}| < 5$

$|r_{i\min}, r'_{i\min}| > 0,15\,\mathrm{mm}$.

$(\lambda \in \langle 0,45\ \mu\mathrm{m} - 0,70\ \mu\mathrm{m} \rangle)$

$(f' = 250\ \mathrm{mm}$,

$\lambda \in \langle 0,45\ \mu\mathrm{m} - 0,70\ \mu\mathrm{m} \rangle$

$\lambda = (0,542;\ 0,487;\ 0,616;\ 0,457;\ 0,681)$