achromatizace

(L5)

$$K(\lambda) = [n(\lambda)-1]\,A \quad , \quad A = \frac{1}{R_1} - \frac{1}{R_2}$$

$$\frac{K(\lambda)}{n(\lambda)-1} = \frac{K(\lambda_0)}{n(\lambda_0)-1}$$

$$K(\lambda) = K(\lambda_0)\,\frac{n(\lambda)-1}{n(\lambda_0)-1}$$

$$\frac{dK(\lambda)}{d\lambda} = \frac{K(\lambda_0)}{n(\lambda_0)-1}\,\frac{dn(\lambda)}{d\lambda}$$

$$\left.\frac{dK(\lambda)}{d\lambda}\right|_{\lambda_0} = \frac{K(\lambda_0)}{n(\lambda_0)-1}\left.\frac{dn(\lambda)}{d\lambda}\right|_{\lambda_0}$$

barevná vada

$$K(\lambda_j) = K(\lambda_0)\,\frac{n(\lambda_j)-1}{n(\lambda_0)-1}$$

m z č

$\lambda_1 < \lambda_0 < \lambda_2$

$$\Delta K(\lambda_1,\lambda_2) = K(\lambda_1) - K(\lambda_2) = K(\lambda_0)\left(\frac{n(\lambda_1)-n(\lambda_2)}{n(\lambda_0)-1}\right)\frac{1}{\nu}$$

$$\Delta K = \frac{K(\lambda_0)}{\nu}$$

$$\Delta K = \frac{1}{f(\lambda_1)} - \frac{1}{f(\lambda_2)} = \frac{f(\lambda_2)-f(\lambda_1)}{f(\lambda_1)f(\lambda_2)} \approx -\frac{\Delta f}{f(\lambda_0)^2}$$

$$\frac{K(\lambda_0)}{\nu} = \frac{1}{f(\lambda_0)}\,\frac{1}{\nu} \approx -\frac{\Delta f}{f(\lambda_0)^2}$$

$$\Delta f \approx -\frac{f(\lambda_0)}{\nu}$$

návrh dusíku

$$\Delta K_S = \frac{K_S(\lambda_0)}{\nu_S} \quad , \quad \Delta K_R = \frac{K_R(\lambda_0)}{\nu_R}$$

pokud $\nu_S = \nu_R$, $\Delta K_S + \Delta K_R = 0 \Rightarrow K_S + K_R = 0$!!

$$K_S + K_R = K$$

$$\frac{K_S}{\nu_S} + \frac{K_R}{\nu_R} = 0$$

} známe K, ν_S, ν_R řešíme pro K_S, K_R

$$K_R = K - K_S$$

$$\frac{K_S}{\nu_S} + \frac{K - K_S}{\nu_R} = 0$$

$$K_S \left(\frac{1}{\nu_S} - \frac{1}{\nu_R} \right) = K_S \frac{\nu_R - \nu_S}{\nu_S \nu_R} = -\frac{K}{\nu_R}$$

$$K_S = K \frac{\nu_S}{\nu_S - \nu_R}$$

$$\frac{K_S}{K} = \frac{\nu_S}{\nu_S - \nu_R} \quad , \quad \frac{K_R}{K} = \frac{\nu_R}{\nu_R - \nu_S}$$

difraktivní čočka

$$f = \frac{\pi}{\lambda \alpha} \Rightarrow K(\lambda) = \frac{\lambda \alpha}{\pi}$$

$$\frac{dK(\lambda)}{d\lambda} = \frac{\alpha}{\pi} = \frac{K(\lambda)}{\lambda} \quad \text{(konst.)}$$

$$\frac{K(\lambda)}{\lambda} = \frac{K(\lambda_0)}{\lambda_0} \Rightarrow K(\lambda) = K(\lambda_0)\frac{\lambda}{\lambda_0}$$

—

$$\Delta K = K(\lambda_1) - K(\lambda_2) = K(\lambda_0)\frac{\lambda_1 - \lambda_2}{\lambda_0}\frac{1}{\nu}$$

$$\Delta K = \frac{K(\lambda_0)}{\nu} \mid \nu = \frac{\lambda_0}{\lambda_1 - \lambda_2}$$

$$\lambda_1 < \lambda_2 \Rightarrow \nu < 0 \; !$$