

Fresnelovy amplitudy

- Pro odražené světlo

$$r_p = \frac{n_2 \cos \varphi_1 - n_1 \cos \varphi_2}{n_2 \cos \varphi_1 + n_1 \cos \varphi_2}$$

$$r_s = \frac{n_1 \cos \varphi_1 - n_2 \cos \varphi_2}{n_1 \cos \varphi_1 + n_2 \cos \varphi_2}$$

- Pro lomené světlo

$$t_p = \frac{2n_1 \cos \varphi_1}{n_2 \cos \varphi_1 + n_1 \cos \varphi_2}$$

$$t_s = \frac{2n_1 \cos \varphi_1}{n_1 \cos \varphi_1 + n_2 \cos \varphi_2}$$

Odražnost

$$R_p = r_p^2$$

$$R_s = r_s^2$$

$$2R = R_p + R_s$$

Propustnost

$$T_p = \frac{n_2 \cos \varphi_2}{n_1 \cos \varphi_1} t_p^2$$

$$T_s = \frac{n_2 \cos \varphi_2}{n_1 \cos \varphi_1} t_s^2$$

$$2T = T_p + T_s$$

Snellův zákon lomu

$$\varphi_2 = \arcsin \left(\sin \varphi_1 \frac{n_2}{n_1} \right)$$

p - v rovině dopadu

s - kolmo k rovině dopadu

φ_1 - úhel dopadu

φ_2 - úhel lomu

$$R = \frac{1}{2} \left[\left(\frac{n_2 \cos \varphi_1 - n_1 \cos \varphi_2}{n_2 \cos \varphi_1 + n_1 \cos \varphi_2} \right)^2 + \left(\frac{n_1 \cos \varphi_1 - n_2 \cos \varphi_2}{n_1 \cos \varphi_1 + n_2 \cos \varphi_2} \right)^2 \right]$$

$$T = \frac{1}{2} \frac{n_2 \cos \varphi_2}{n_1 \cos \varphi_1} \left[\left(\frac{2n_1 \cos \varphi_1}{n_2 \cos \varphi_1 + n_1 \cos \varphi_2} \right)^2 + \left(\frac{2n_1 \cos \varphi_1}{n_1 \cos \varphi_1 + n_2 \cos \varphi_2} \right)^2 \right]$$

$$\cos \varphi_2 = \sqrt{1 - \left(\sin \varphi_1 \frac{n_2}{n_1} \right)^2}$$

$$1 = R + T$$