

## I15PLANIDS

### Normal incidence. Plane parallel plate, reflected and transmitted intensity depending on wavelength for fixed thickness.

The reflection coefficients are calculated from Fresnel's formulas for  $\theta = 0$ . Refractive indices  $n_1$ ,  $n_2$  and  $n_3$  may all be different and the reflection coefficient for both surfaces are calculated.

The calculation of the fringe pattern is done depending on  $\lambda$  for fixed  $D$ .

$$\Delta = 2\pi/\lambda \cdot 2dn_2$$

$$n_1 := 1 \quad n_2 := 1.5 \quad n_3 := 1$$

$$r_{12} := \frac{n_2 - n_1}{n_2 + n_1} \quad r_{23} := \frac{n_3 - n_2}{n_3 + n_2}$$

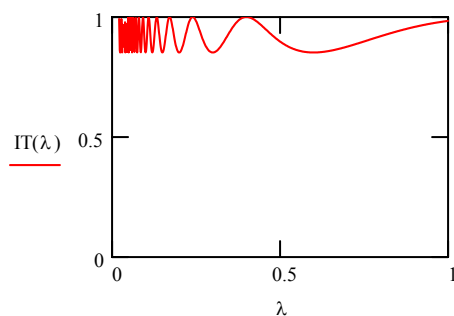
$$r_{12} = 0.2 \quad r_{23} = -0.2$$

$$\lambda \equiv .021, .022 \dots 1 \quad D \equiv .2$$

$$IT(\lambda) := \frac{(1 - r_{12}^2) \cdot (1 - r_{23}^2)}{1 + (r_{12} \cdot r_{23})^2 - (2 \cdot r_{12} \cdot r_{23}) \cdot \cos\left(4 \cdot \pi \cdot \frac{D}{\lambda} \cdot n_2\right)}$$

$$IR(D) := 1 - IT(D)$$

Transmitted pattern



Reflected pattern

