M5FRINTN2L

Fresnel's formulas as function of angle of incidence for n1<n2

for Rp = rp^2, Rs = rs^2, and Tp = 1- Rp, Ts = 1-Rs

1. Amplitude reflection coefficients.

$$rp(\theta) := \frac{\left(\frac{n2}{n1}\right)\cdot\cos\left(2\cdot\frac{\pi}{360}\cdot\theta\right) - \sqrt{1-\left[\left(\frac{n1}{n2}\right)\cdot\sin\left(2\cdot\frac{\pi}{360}\cdot\theta\right)\right]^2}}{\frac{n2}{n1}\cdot\cos\left(2\cdot\frac{\pi}{360}\cdot\theta\right) + \sqrt{1-\left[\left(\frac{n1}{n2}\right)\cdot\sin\left(2\cdot\frac{\pi}{360}\cdot\theta\right)\right]^2}}$$

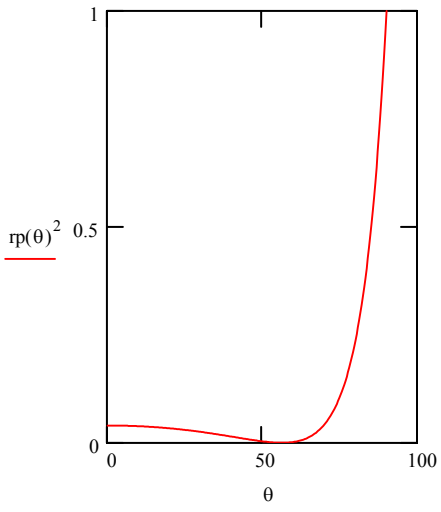
$$rs(\theta) := \frac{\cos\left(2\cdot\frac{\pi}{360}\cdot\theta\right) - \left(\frac{n2}{n1}\right)\cdot\sqrt{1-\left[\left(\frac{n1}{n2}\right)\cdot\sin\left(2\cdot\frac{\pi}{360}\cdot\theta\right)\right]^2}}{\cos\left(2\cdot\frac{\pi}{360}\cdot\theta\right) + \left(\frac{n2}{n1}\right)\cdot\sqrt{1-\left[\left(\frac{n1}{n2}\right)\cdot\sin\left(2\cdot\frac{\pi}{360}\cdot\theta\right)\right]^2}}$$

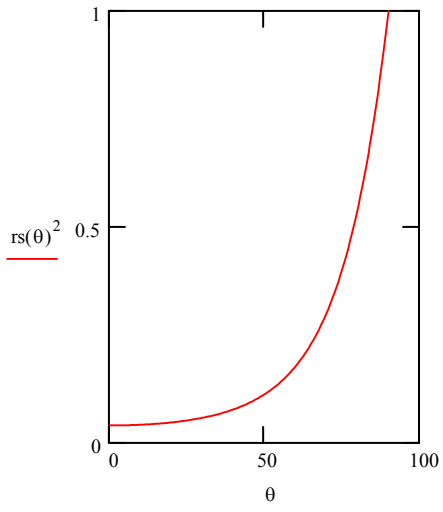
$n1 \equiv 1 \qquad n2 \equiv 1.5 \qquad \theta \equiv 0, .4 .. 90$

2. Reflection: Intensities

$$Rp(\theta) := rp(\theta)^2 \qquad Rs(\theta) := rs(\theta)^2$$

p - case **s - case**

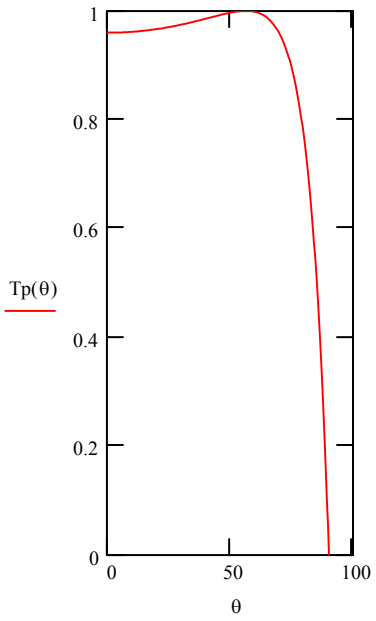




3. Transmission: Intensities

p - case

$$Tp(\theta) := 1 - Rp(\theta)$$



s - case

$$Ts(\theta) := 1 - Rs(\theta)$$