

## M3FRN2S

Fresnel's formulas as function of angle of incidence for first medium 1 and second medium 2 and  $n_1 > n_2$ .

### 1. Reflection coefficients.

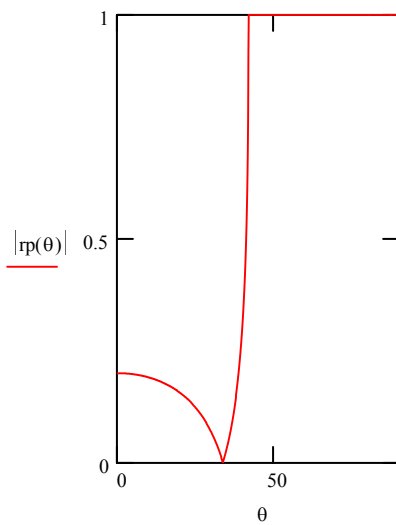
Absolute value and imaginary parts for p-case and s-case.

$$r_p(\theta) := \frac{\left(\frac{n_2}{n_1}\right) \cdot \cos\left(2 \cdot \frac{\pi}{360} \cdot \theta\right) - \sqrt{1 - \left[\left(\frac{n_1}{n_2}\right) \cdot \sin\left(2 \cdot \frac{\pi}{360} \cdot \theta\right)\right]^2}}{\frac{n_2}{n_1} \cdot \cos\left(2 \cdot \frac{\pi}{360} \cdot \theta\right) + \sqrt{1 - \left[\left(\frac{n_1}{n_2}\right) \cdot \sin\left(2 \cdot \frac{\pi}{360} \cdot \theta\right)\right]^2}}$$

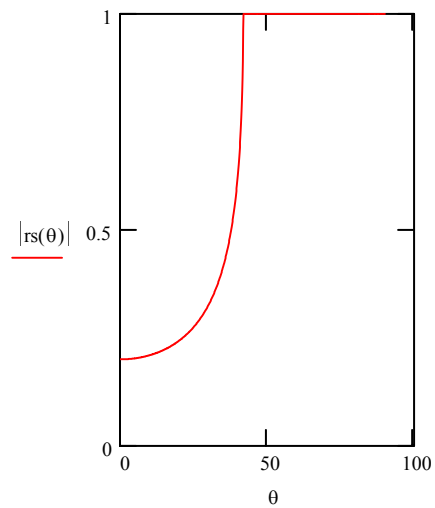
$$r_s(\theta) := \frac{\cos\left(2 \cdot \frac{\pi}{360} \cdot \theta\right) - \left(\frac{n_2}{n_1}\right) \cdot \sqrt{1 - \left[\left(\frac{n_1}{n_2}\right) \cdot \sin\left(2 \cdot \frac{\pi}{360} \cdot \theta\right)\right]^2}}{\cos\left(2 \cdot \frac{\pi}{360} \cdot \theta\right) + \left(\frac{n_2}{n_1}\right) \cdot \sqrt{1 - \left[\left(\frac{n_1}{n_2}\right) \cdot \sin\left(2 \cdot \frac{\pi}{360} \cdot \theta\right)\right]^2}}$$

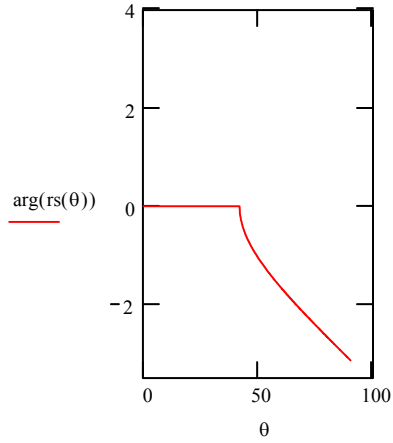
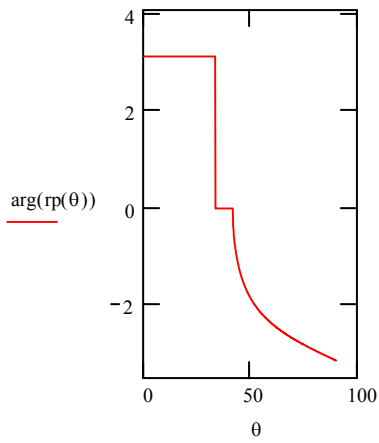
$$\theta \equiv .1, .2 \dots 90 \quad n_1 \equiv 1.5 \quad n_2 \equiv 1$$

**p - case**



**s - case**





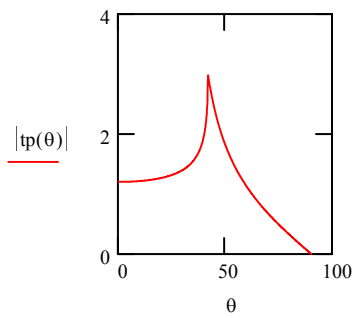
## 2. Transmission coefficient.

Absolute value and imaginary part for p-case and s-case.

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

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

**p - case**



**s - case**

