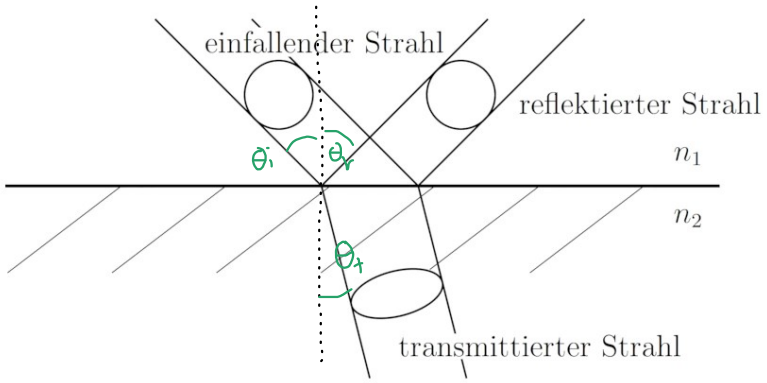


$\theta_i = \theta_1 \qquad \theta_t = \theta_2$

$$\frac{\sin(\theta_1)}{\sin(\theta_2)} = \frac{n_2}{n_1}$$

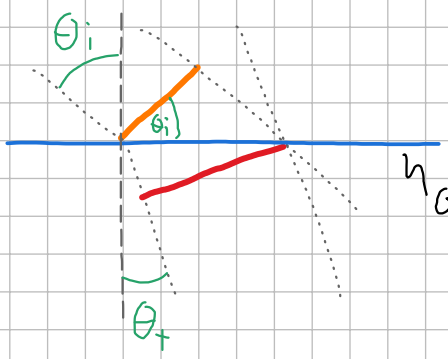
a) θ_e, θ_r, θ_t ?

$$\sin(\theta_i) = \sin(\theta_t) \cdot 1{,}6$$

$$\theta_b = \theta_i = \arctan\left(\frac{n_2}{n_1}\right) = 57{,}994° = \theta_r$$

$$\theta_t = \arcsin\left(\frac{\sin\theta_i}{1{,}6}\right) = 32°$$

b) A von trans.



Fläche ellipse: $A = \frac{\pi ab}{4}$

2 Schritte: $b_i = 2\sqrt{\frac{A}{\pi}} \Rightarrow b_g = \frac{b_i}{\cos(\theta_i)}$

$b_t = b_g \cdot \cos\theta_t)$

$$A = \frac{1}{4}\pi \cdot 2\cdot\sqrt{\frac{A}{\pi}} \quad b_t = \frac{1}{4}\pi 2\sqrt{\frac{A}{\pi}} \cdot 2\sqrt{\frac{A}{\pi}} \cdot \frac{\cos(\theta_t)}{\cos(\theta_i)}$$

$$= A \cdot \frac{\cos(\theta_t)}{\cos(\theta_i)} = 4{,}8\ mm^2$$

c) T, T von Formelsammlung: $n = \frac{n_2}{n_1} = 1{,}6$

$$T_{TM} = \frac{n^2\cos(\theta_1) - \sqrt{n^2 - \sin^2(\theta_1)}}{n^2\cos(\theta_1) + \sqrt{n^2 - \sin^2(\theta_1)}} = \frac{1{,}6^2\cdot\cos(58°) - \sqrt{1{,}6^2 - \sin^2(58°)}}{1{,}6^2\cdot\cos(58°) + \sqrt{1{,}6^2 - \sin^2(58°)}} \approx 0 = T_{TM}$$

T_{TM} wenn Brewster = 0

$T_{TE} = -0{,}368$

$$T_{TM} = \frac{2n\cos\theta_1}{n^2\cos\theta_1 + \sqrt{n^2 - \sin^2(\theta_1)}} = 0{,}624$$

$T_{TE} = 0{,}561$

zirkular Polarisiert: $E_{e,TM} = E_{e,TE}$

$$P = \frac{E^2 \cdot A}{2\eta} \rightarrow E = \sqrt{\frac{P 2\eta}{A}}$$

$$\eta H = E$$