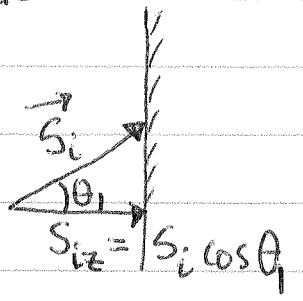
Intensitet: $S_z = \vec{S} \cdot \hat{z}$ = effekt pr flateenhet som treffer grenseflaten



$$\Rightarrow I_{ip} = \frac{1}{2}\varepsilon_1 v_1 E_{ipo}^2 \cdot \cos\theta_1$$

$$I_{rp} = \frac{1}{2}\varepsilon_1 v_1 E_{rpo}^2 \cdot \cos\theta_1$$

$$I_{tp} = \frac{1}{2}\varepsilon_2 v_2 E_{tpo}^2 \cdot \cos\theta_2$$

$$\Rightarrow R_p = \frac{I_{rp}}{I_{ip}} = \left(\frac{\alpha-\beta}{\alpha+\beta}\right)^2$$

$$T_p = \frac{I_{tp}}{I_{ip}} = \underbrace{\frac{\varepsilon_2 v_2}{\varepsilon_1 v_1}}_{\beta}\underbrace{\frac{\cos\theta_2}{\cos\theta_1}}_{\alpha}\left(\frac{E_{tpo}}{E_{ipo}}\right)^2 = \alpha\beta\left(\frac{2}{\alpha+\beta}\right)^2$$

Brewsters vinkel: Når $\alpha=\beta$, er $R_p=0$ og $T_p=1$ for bølge med $\vec{E}$ i innfallsplanet. Det skjer når

$$\alpha^2 = \frac{1 - n_1^2 \sin^2\theta_B / n_2^2}{\cos^2\theta_B} = \beta^2$$

$$\Rightarrow \sin^2\theta_B = \frac{1-\beta^2}{(n_1/n_2)^2 - \beta^2}$$

Umagnetiske medier $\Rightarrow \beta^2 \approx n_2^2/n_1^2 \Rightarrow \sin^2\theta_B \approx \frac{\beta^2}{1+\beta^2}$

$$\Rightarrow \boxed{\tan\theta_B \approx n_2/n_1}$$

Eks: Luft/glass $\Rightarrow \tan\theta_B \approx 1.5/1.0$

$$\Rightarrow \theta_B \approx 56^\circ$$