

Föreläsning 14 27/05-14

Genomgång av tentamen (25/08-14)

1a) Wiens förskjutnings lag

$$\lambda_{\max} T = 2.898 \cdot 10^3 (\mu\text{m} \cdot \text{K})$$

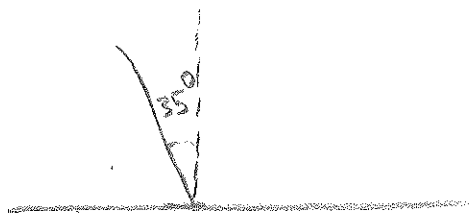
$$T = 1588 \text{K} = 1315^\circ\text{C}$$

Exp = diff
eller
optik (koll, lmj)

b)

c)

2)



$$n_o = 1.6589$$

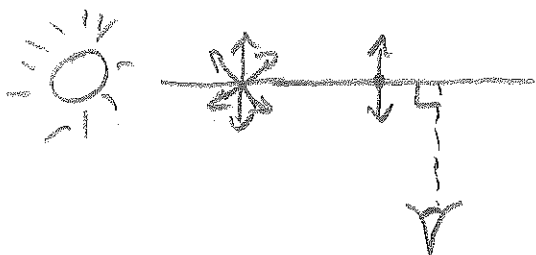
$$n_e = 1.4864$$

$$n \sin \theta = \sin 35^\circ$$

$$\theta_o = 20.23^\circ$$

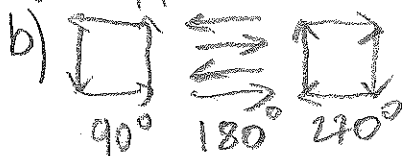
$$\theta_e = 22.70^\circ$$

3a) \Rightarrow transmitterar vertikal pol. ljus.



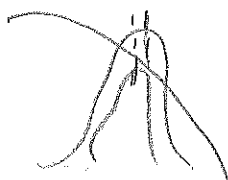
4) Räkna först ut allt (fokallängd, ...) ovan vattnet, sedan i vattnet och jämför.

5a) Diffraction

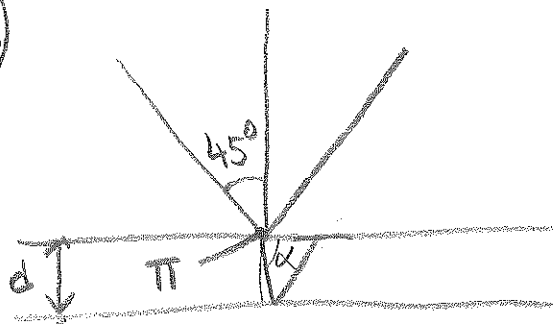


c)

d) bimax. skiftas lite



6)



$$\lambda = 685 \text{ nm}$$

$$n_1 = 1$$

$$n_2 = 1,3$$

$$n_3 = 1,7$$

$$1 \sin 45^\circ = 1,3 \sin \alpha \Rightarrow \alpha = 33^\circ$$

$$2n_2 d \cos \alpha = \frac{\lambda}{2} \text{ - utsläckning / destruktiv inter}$$

$$d = 157 \text{ nm}$$

↙ polarisation transmitteras bäst.

7)

$$8a) \left. \begin{array}{l} R_n^2 = n r_0 \lambda \\ \lambda = 750 \text{ nm} \\ v_0 = 3,0 \text{ m} \\ n = 1 \end{array} \right\} R_n = 1,5 \text{ mm}$$

b)

$$A_n = \frac{a_1}{2}, \quad I \propto a^2$$

$$\Rightarrow I = k I_0$$

c)

$$\pi \cdot A_n \Rightarrow I = \pi^2 I_0$$