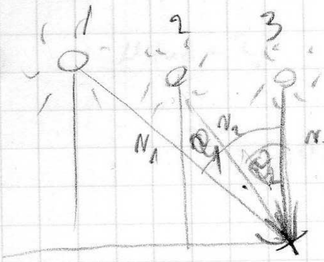
Hint fotometrija

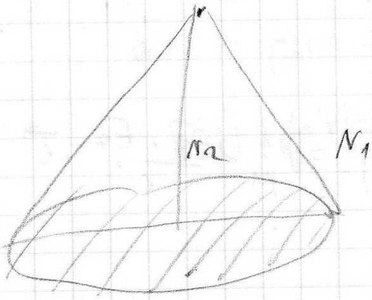


3 lampe...

$\theta_3 = 0$ ...

θ_2 ...

θ_1 ...



WTF? :(

gledu površinu uzimamo u obzir...

$N_1 \neq N_2$

(5.) $E_z = 0{,}3 \frac{V}{m} \sin\left(2\pi\cdot 10^{14} s^{-1}\left(t - \frac{x}{3\cdot 10^8 m/s}\right)\right)$ $\quad k = \frac{\omega}{v}$

$E_x = 0$ ...

$E_y = 0$ ...

smjer osi x...

brzina svj...

$\omega = 2\pi\cdot 10^{14}$

$\vec{S}, \bar{S} = ?$

$\vec{S} = \frac{1}{\mu}(\vec{E}\times\vec{B})$, $\quad \vec{B} = \frac{\vec{c}\times\vec{E}}{c^2}$ $\quad c_x = c$, $c_y = 0$, $c_z = 0$

$B_x = 0$

$B_y = -\frac{E_z}{c}$

$B_z = 0$

$$\vec{B} = \frac{1}{c^2}\begin{vmatrix} \overset{+}{\vec{i}} & \overset{-}{\vec{j}} & \overset{+}{\vec{k}} \\ c & 0 & 0 \\ 0 & 0 & E_z \end{vmatrix} \rightarrow$$

$$= \frac{1}{c^2}\left(\vec{i}(0 E_z - 0\cdot 0) - \vec{j} E_z c + \vec{k}(0)\right) = -\vec{j}\frac{1}{c^2}E_z\cdot c$$

$$= \frac{1}{c^2}(-\vec{j})cE_z = (-\vec{j})\frac{E_z}{c}$$

$$\vec{\rho} = \frac{1}{\mu} \begin{vmatrix} \vec{i} & \vec{j} & \vec{k} \\ 0 & 0 & E_z \\ 0 & -B_y & 0 \end{vmatrix} = \frac{1}{\mu} \vec{c}\, E_z B_y =$$

$$\vec{\rho} = \frac{1}{\mu} \frac{E_z \cdot E_z}{c} \vec{c} = \frac{E_z^2}{\mu c} \vec{c}$$

$$\mu = 4\pi \cdot 10^{-7}\ \mathrm{Hz} \qquad c = 3 \cdot 10^8\ \mathrm{m/s}$$

$$\vec{\rho} = 2{,}39 \cdot 10^{-4} \frac{W}{m^2} \sin^2\left(2\pi \cdot 10^{14}\ s^{-1}\left(t - \frac{x}{3 \cdot 10^8}\right)\right)\vec{c}$$

$$\bar{\rho} = \frac{E_0 B_0}{2\mu} = \frac{E_0^2}{2\mu c} = \frac{0{,}3^2}{2 \cdot 4\pi \cdot 10^{-7} \cdot 10^8} = 1{,}19 \cdot 10^{-4} \frac{W}{m^2}$$

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(7) Zad

$$\vec{B} = \vec{k} \cdot 3 \cdot 10^{-9}\ T \sin \pi \cdot 10^{15}\ s^{-1}\left(t - \frac{x}{c}\right)$$

$\vec{\rho} = ?$

$c_x = c, \quad c_y = 0, \quad c_z = 0$

$\vec{E} = \vec{B} \times \vec{c}$

$B_x = 0, \quad B_y = 0, \quad B_z = B_0 \sin \omega\left(t - \frac{x}{c}\right)$

$$\vec{E} = \begin{vmatrix} \vec{i} & \vec{j} & \vec{k} \\ 0 & 0 & B_z \\ c & 0 & 0 \end{vmatrix} = \vec{i}(0 \cdot 0 - B_z \cdot 0) - \vec{j}(0 \cdot 0 - B_z \cdot c) + \vec{k}(0 \cdot 0 - 0c)$$

$$= \vec{j}\, B_z \cdot c = \vec{j}\, 0{,}9\ \frac{V}{m} \sin \pi \cdot 10^{15}\ s^{-1}\left(t - \frac{x}{3 \cdot 10^8\ \frac{m}{s}}\right)$$

$3 \cdot 10^{-9} \cdot 3 \cdot 10^8 = 9 \cdot 10^{-1}$

$$\vec{\rho} = \frac{1}{\mu}(\vec{E} \times \vec{B}) = \frac{1}{\mu} \begin{vmatrix} \vec{i} & \vec{j} & \vec{k} \\ 0 & E_y & 0 \\ 0 & 0 & B_z \end{vmatrix}$$

$$= \frac{1}{\mu} E_y B_z \vec{i} + 0 + 0 \ldots = 2{,}15 \cdot 10^{-3} \frac{W}{m^2} \sin^2 \pi \cdot 10^{15}\ s^{-1}\left(t - \frac{x}{3 \cdot 10^8\ \frac{m}{s}}\right)\vec{i}$$