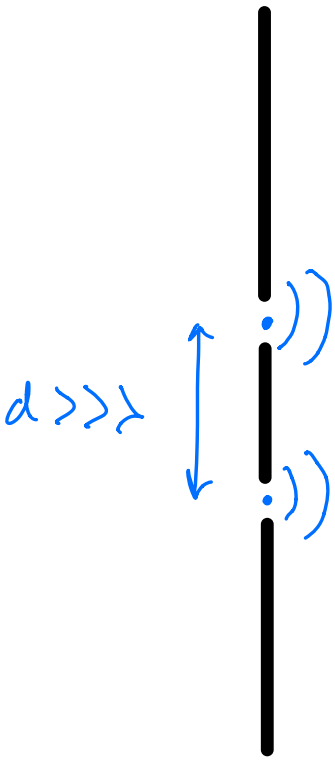
Vaihe-ero ja matkaero:

$$\cos(kr + \phi), \quad t = \text{vakio}$$

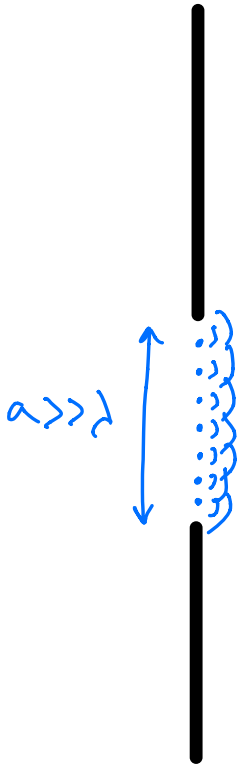
ϕ: vakio

$$k = \frac{2\pi}{\lambda}, \quad kr = 2\pi\frac{r}{\lambda}$$

Interferenssi

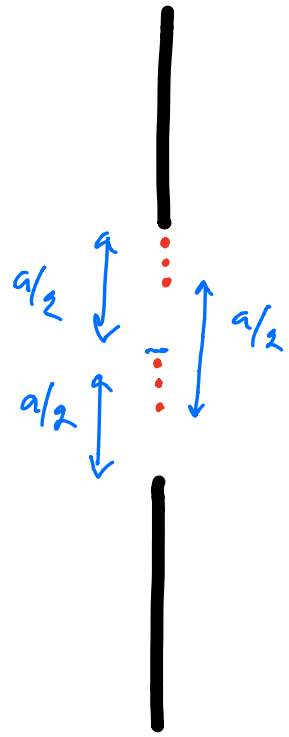


Diffraktio

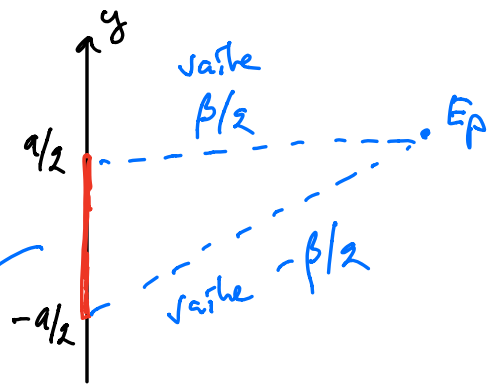


[s. 24]

[s. 28]



[s. 30]



$$E_p = \frac{E_0}{a}\int_{-a/2}^{a/2} \cos\left(\omega t + \frac{\beta}{a}y\right) dy$$

$\theta = 0 \Rightarrow \beta = 0$

$E_p = E_0 \cos(\omega t)$

valitaan $t = 0$

$$\Rightarrow E_p = \frac{E_0}{a}\int_{-a/2}^{a/2} \cos\left(\frac{\beta}{a}y\right) dy$$

$$= \frac{E_0}{\beta}\Big/_{-a/2}^{a/2} \frac{\beta}{\beta}\sin\left(\frac{\beta}{a}y\right)$$

$$= E_0 \frac{\sin(\beta/2)}{\beta/2}$$