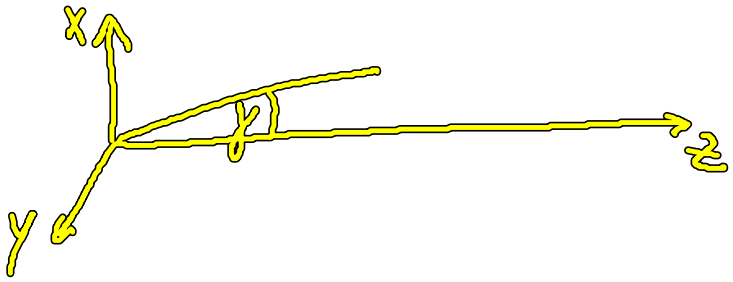
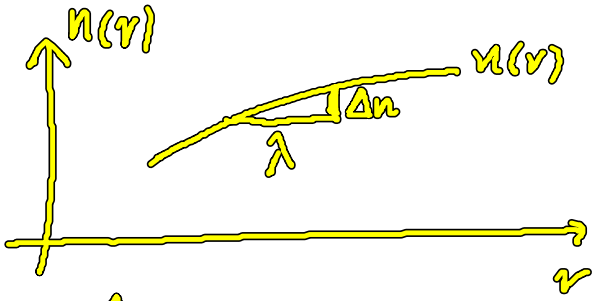
Beugung $\sin\{\frac{1}{2}\vartheta\} = \frac{\lambda}{d}\frac{3.8}{2\pi}$

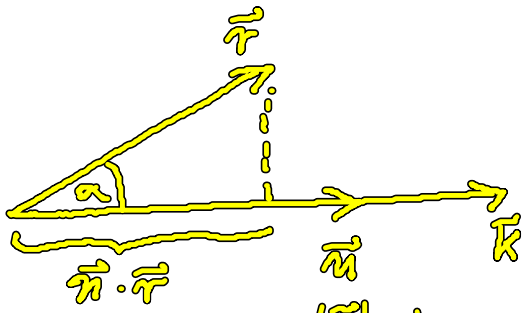
$\lambda = 1{,}5\,\mu m$ $\quad a = 2.5\,\mu \Rightarrow \vartheta = 21°$

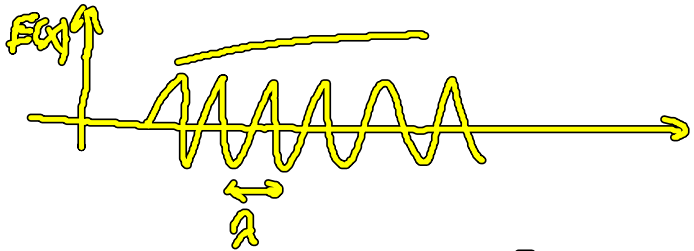
$a = 25\,\mu \Rightarrow \vartheta = 2°$





$\frac{\Delta x}{\lambda}\frac{\Delta n}{\Delta x} = \frac{\Delta n}{\lambda} < n$





$\exp\{-ik_0 S(r)\}$

Falls $n(\vec{r}) = konst$: $E(\vec{r},t) = \vec{E}_0 \exp\{-i\vec{k}\cdot\vec{r}\}\exp\{i\omega t\}$

$|\vec{k}| = k = \frac{\omega}{v} = \frac{\omega}{c}\frac{c}{v} = k_0 n$, $k_0 = \frac{\omega}{c}$

$\vec{k}\cdot\vec{r} = n k_0 \vec{n}\cdot\vec{r} \longrightarrow k_0 S(\vec{r})$

$n\,\vec{n}\cdot\vec{r} \longrightarrow S(\vec{r})$

$\vec{E}(\vec{r},t) = \vec{E}_0(\vec{r})\exp\{-ik_0 S(r)\}\exp\{i\omega t\}$