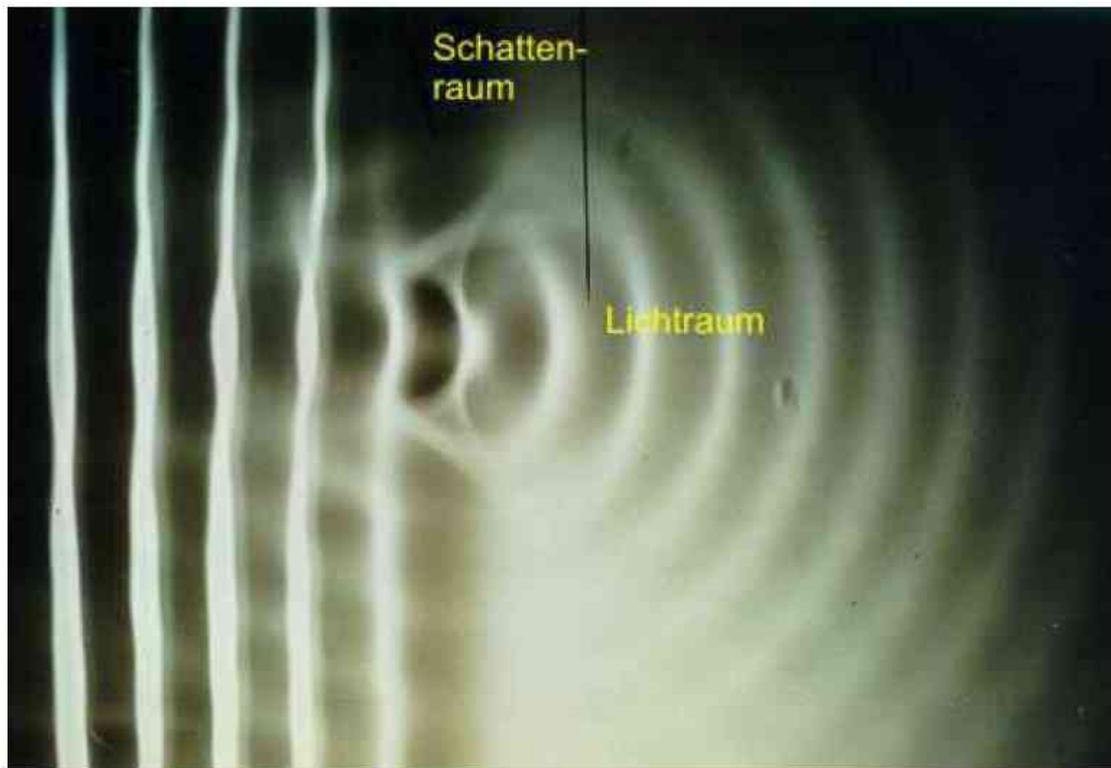
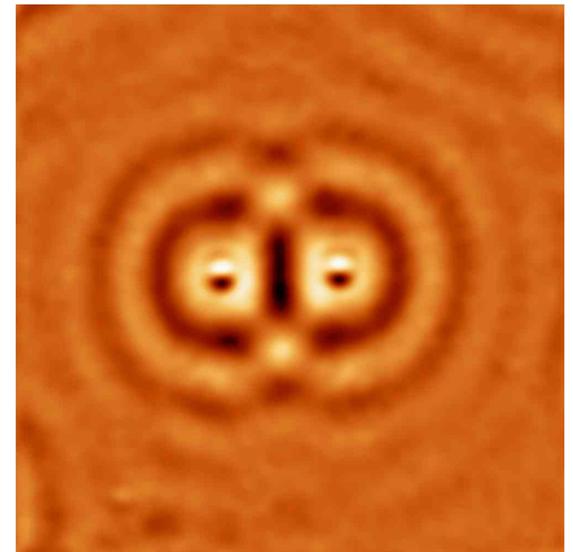
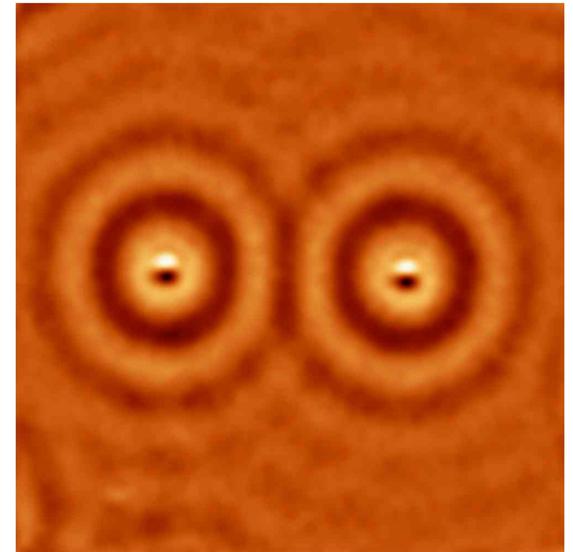


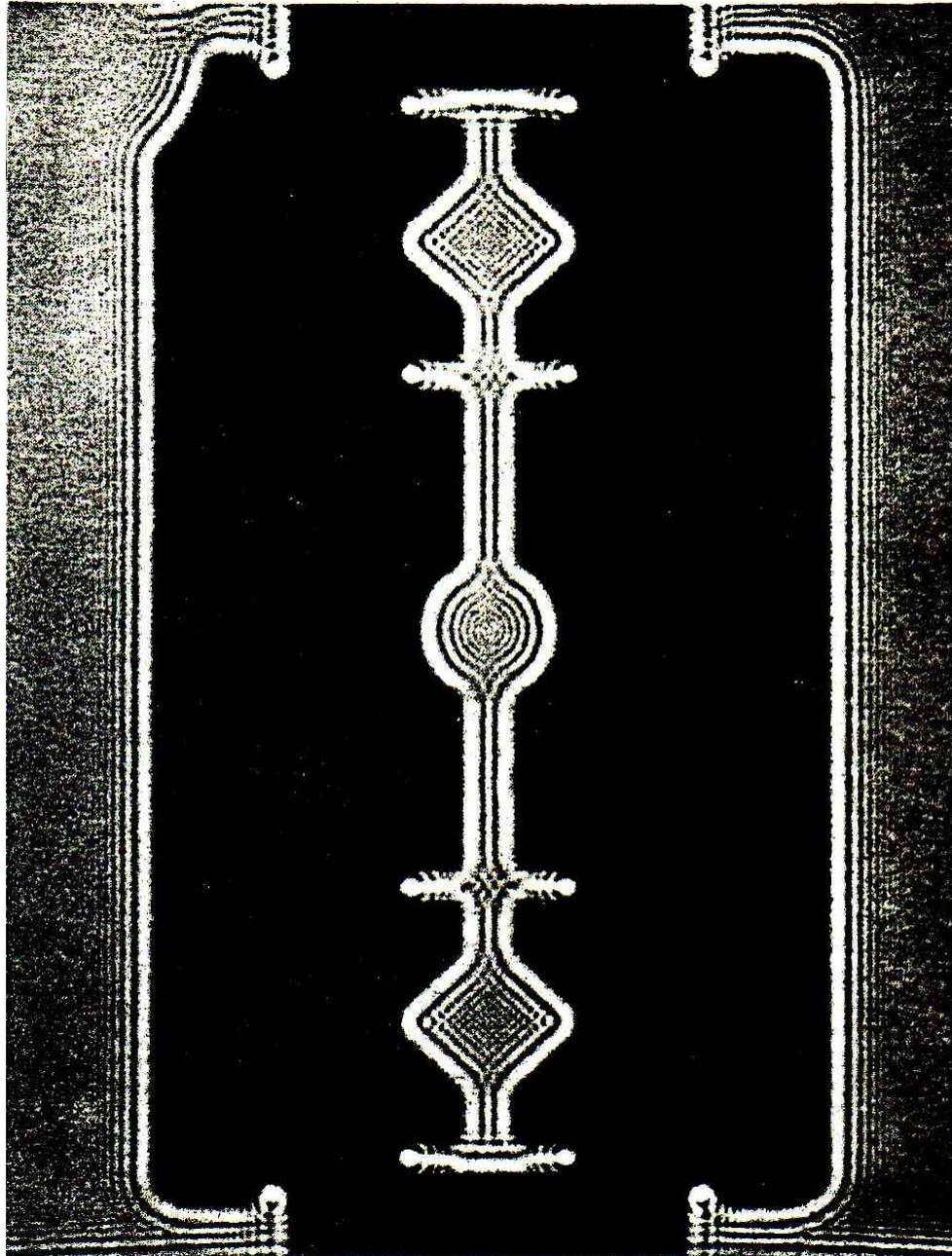
# Wellen - Interferenz und Beugung



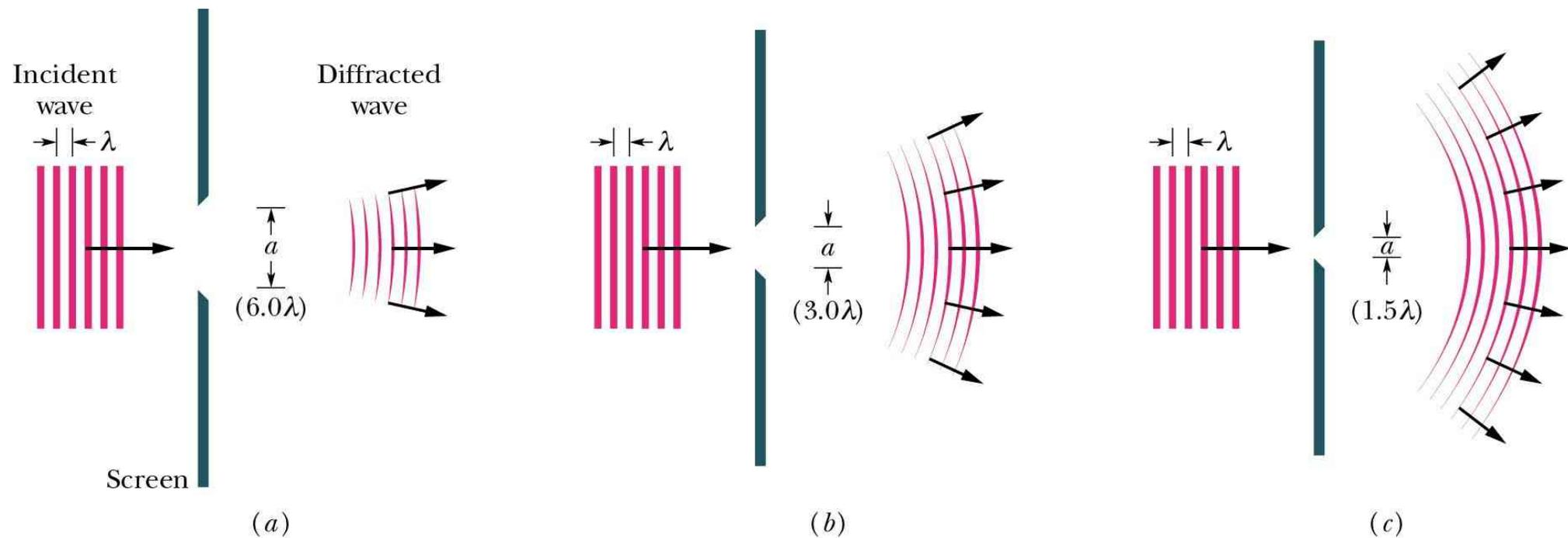
Beugung von Wasserwellen



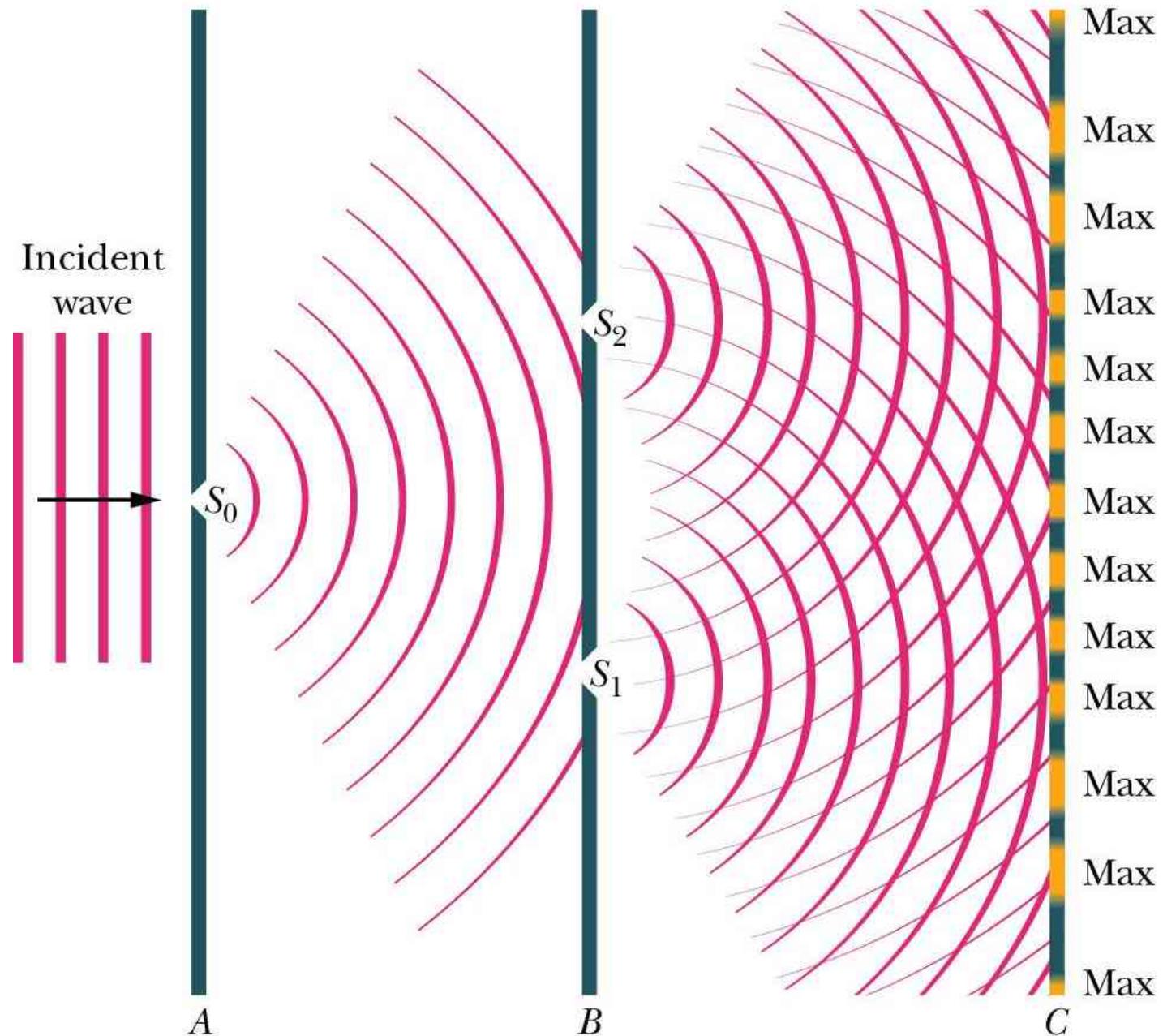
Interferenz von  
Elektronenwellen



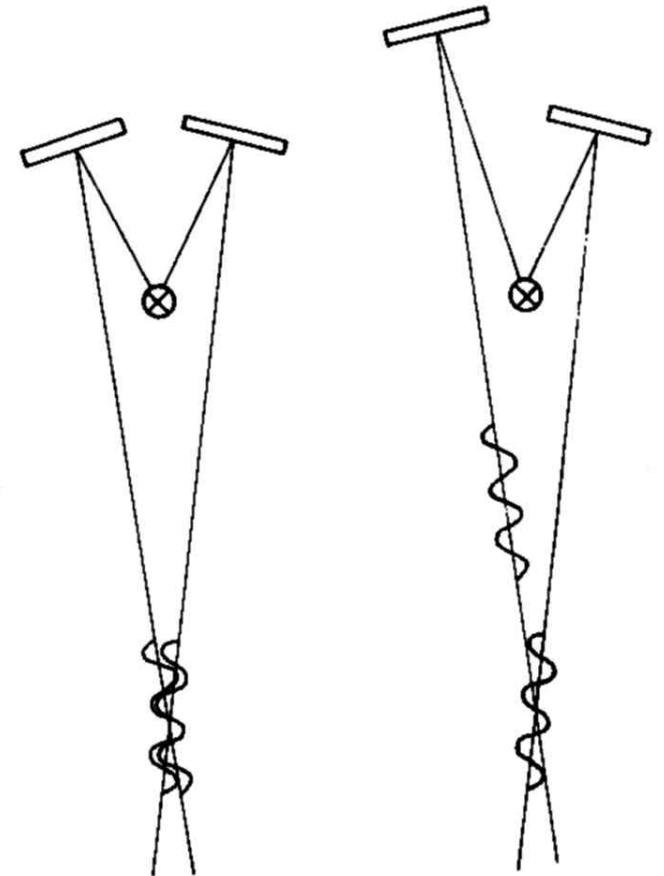
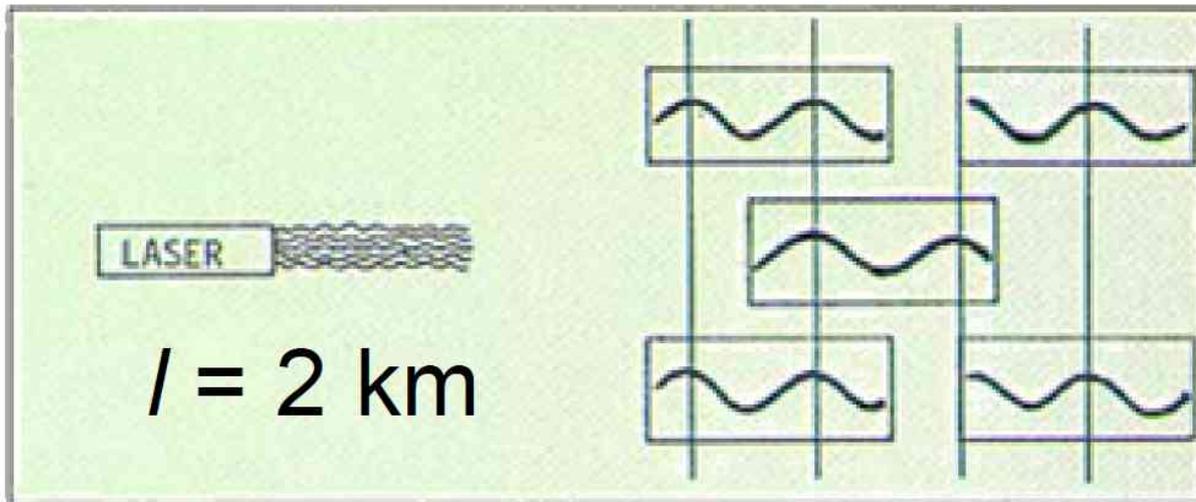
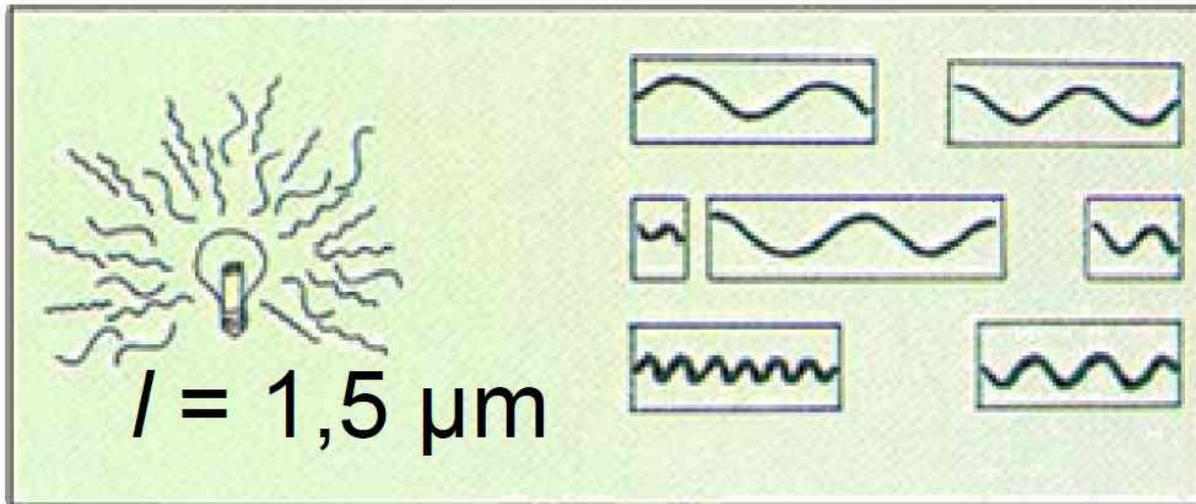
# Beugung: Deutlich für $\lambda \approx a$



# Interferenz erfordert Kohärenz

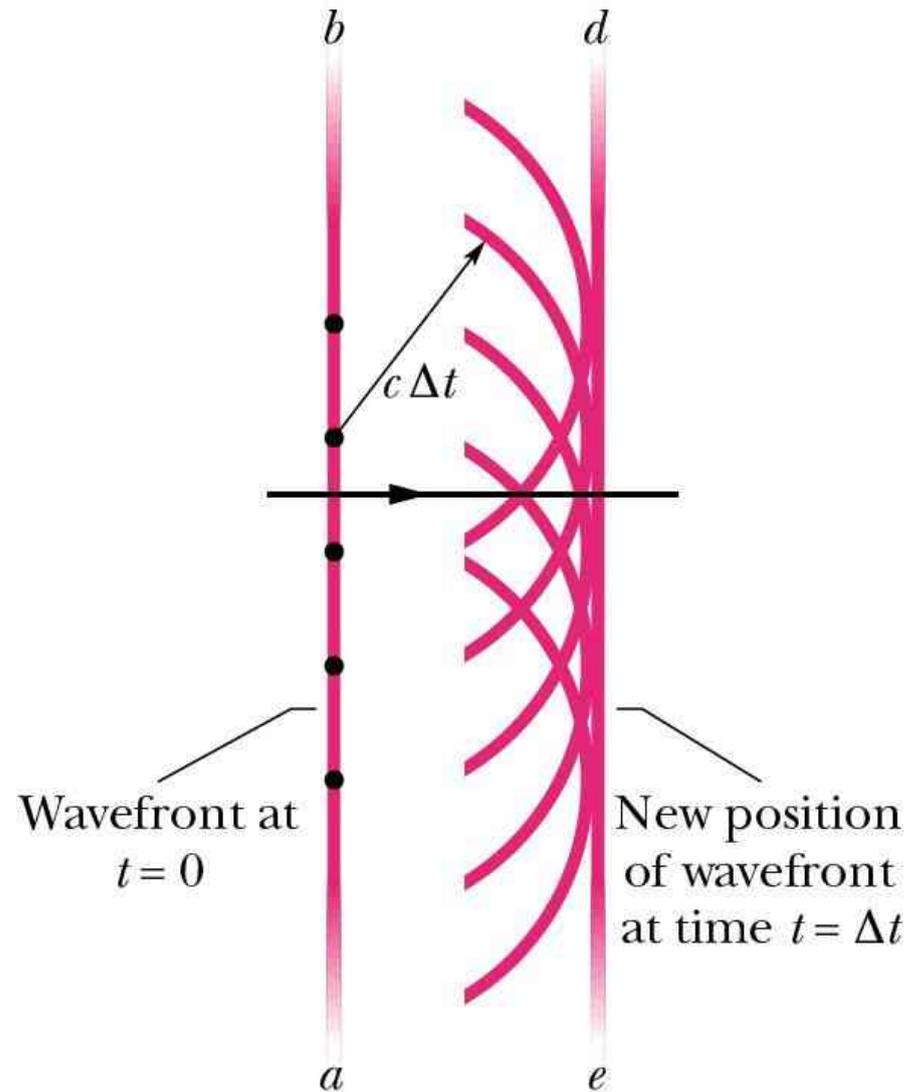


# (In-) Kohärenz von Lichtquellen

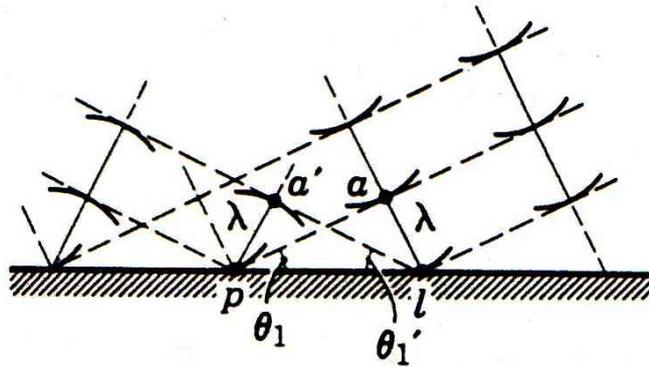
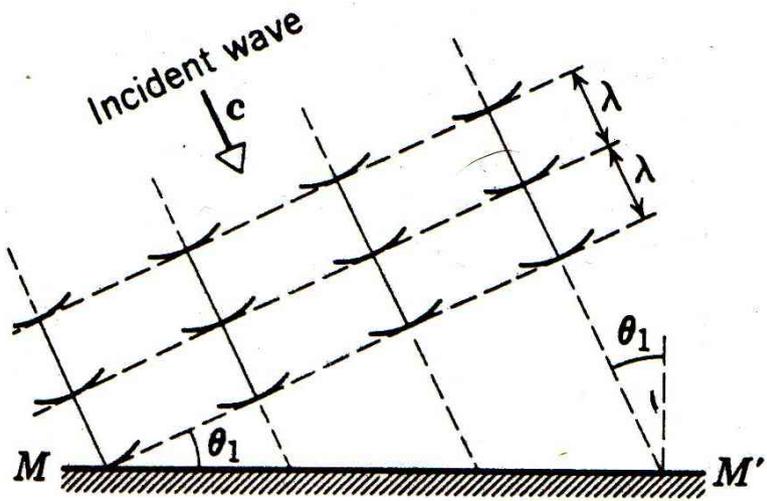


Kohärentes Licht von einer gewöhnlichen Glühlampe

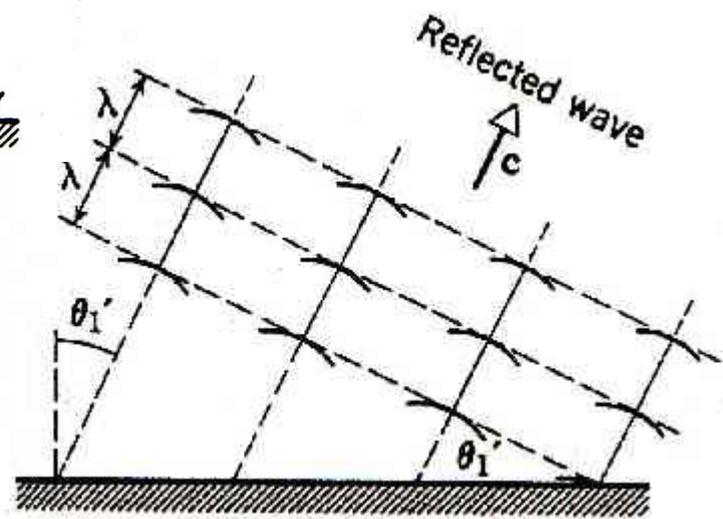
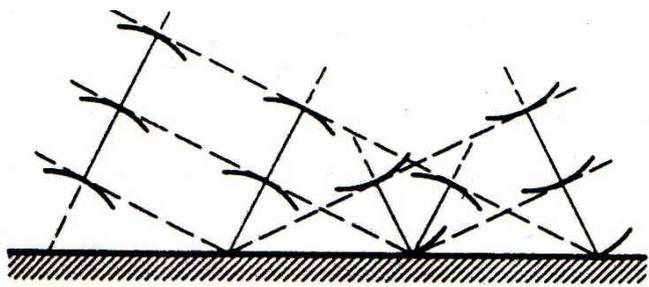
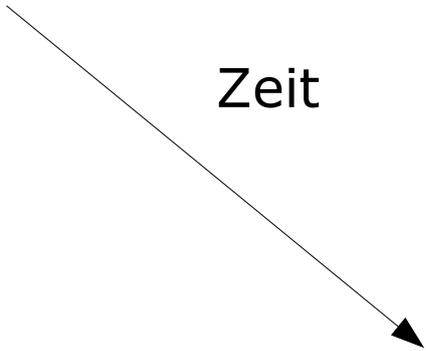
# Huygens Prinzip



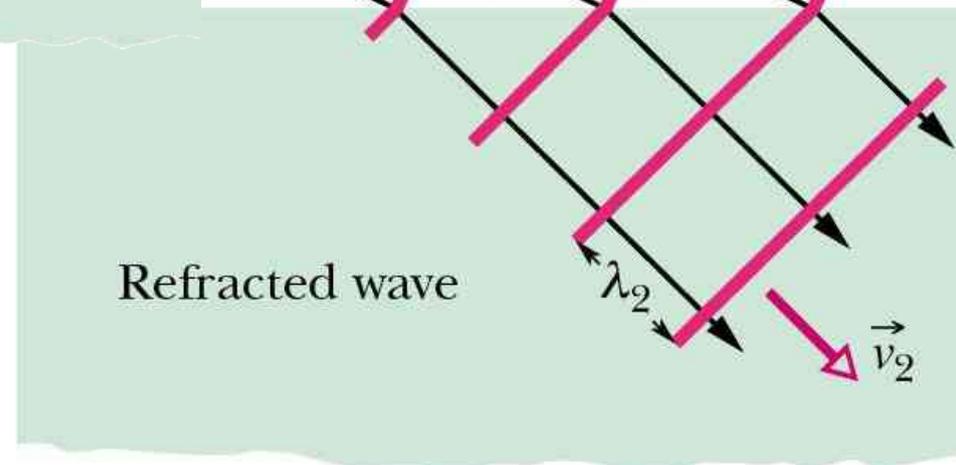
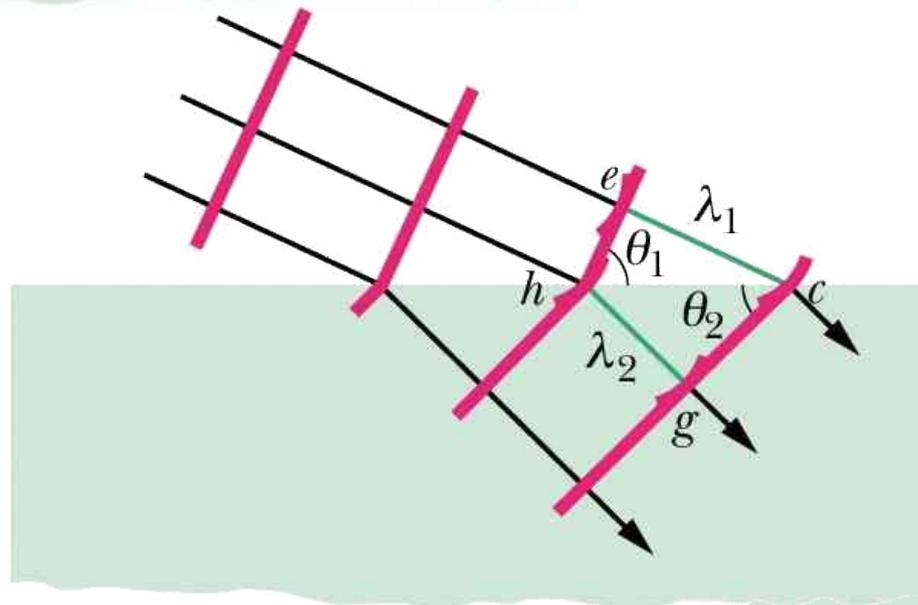
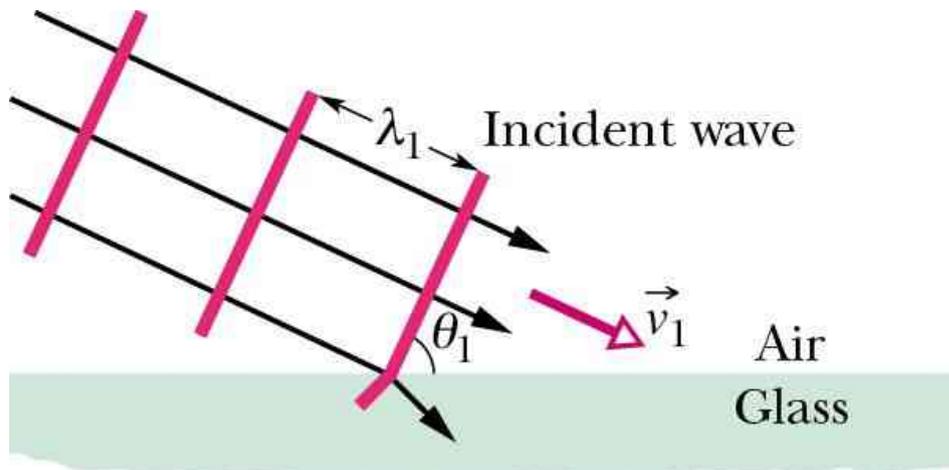
# Huygens: Reflexion



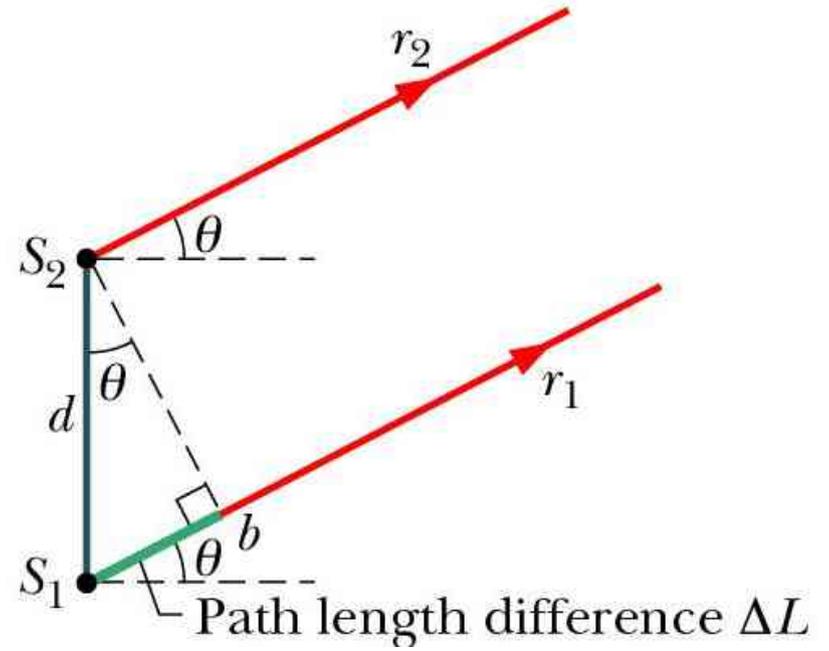
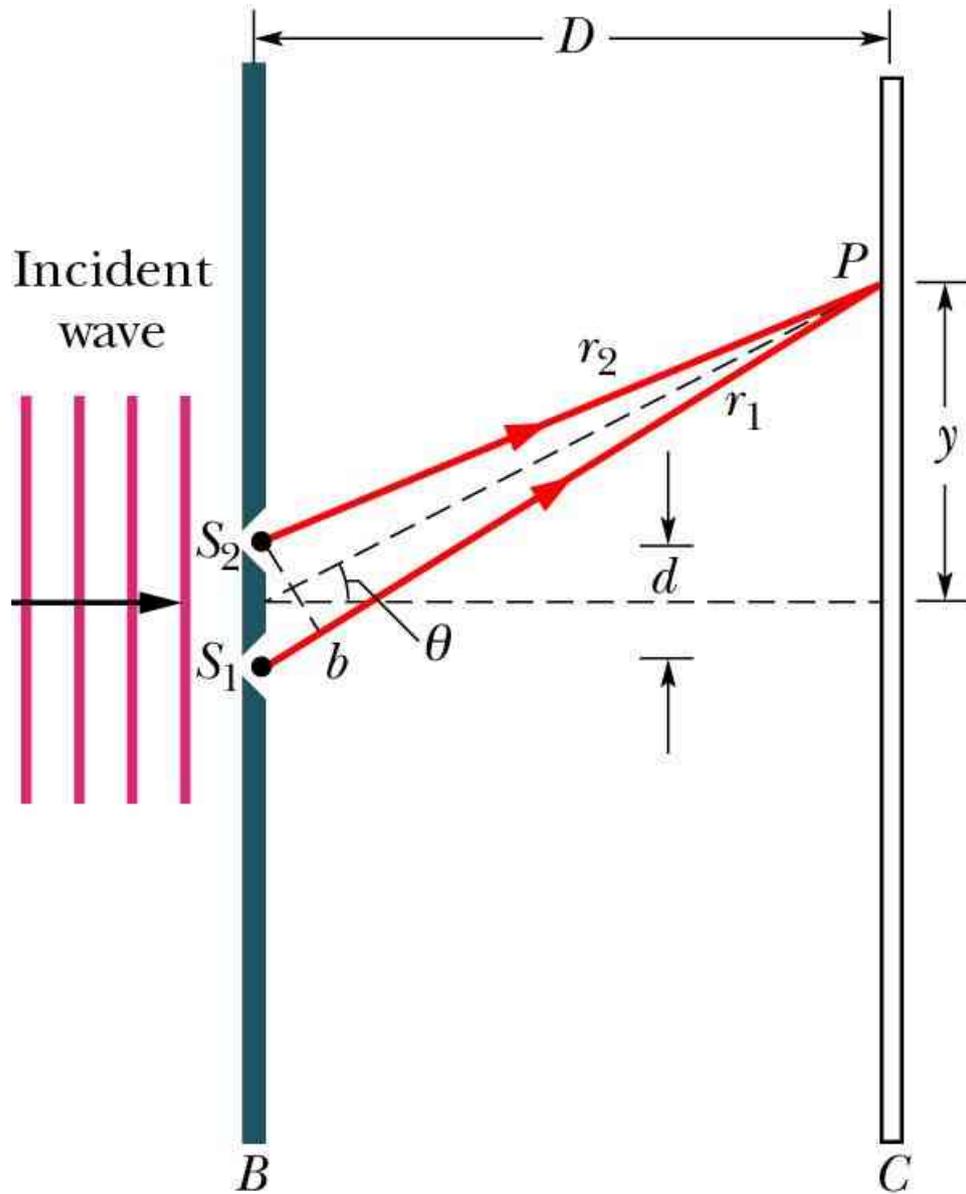
Zeit



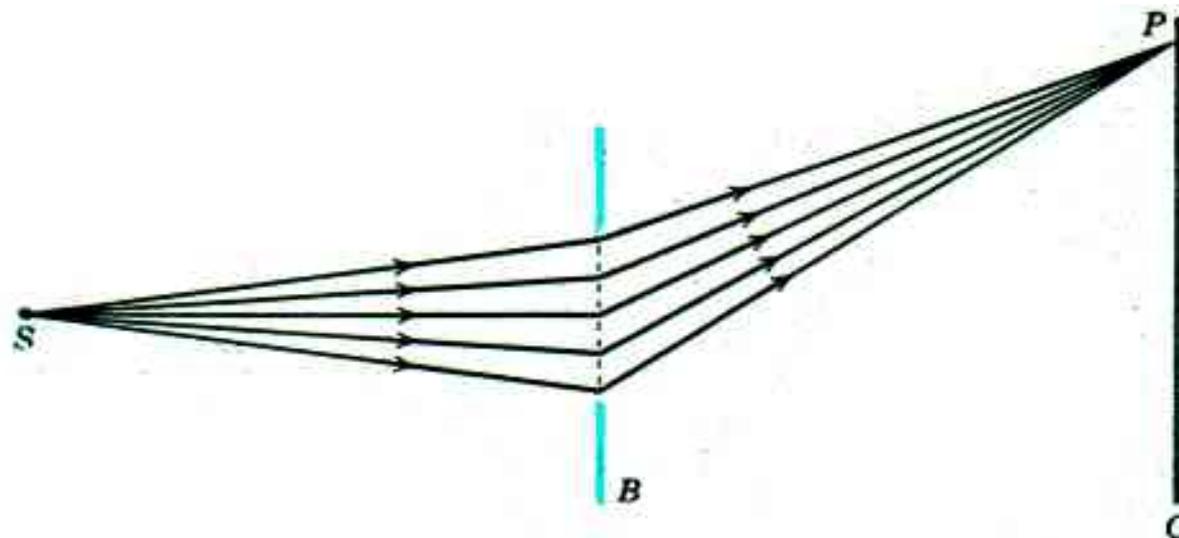
# Huygens: Brechung



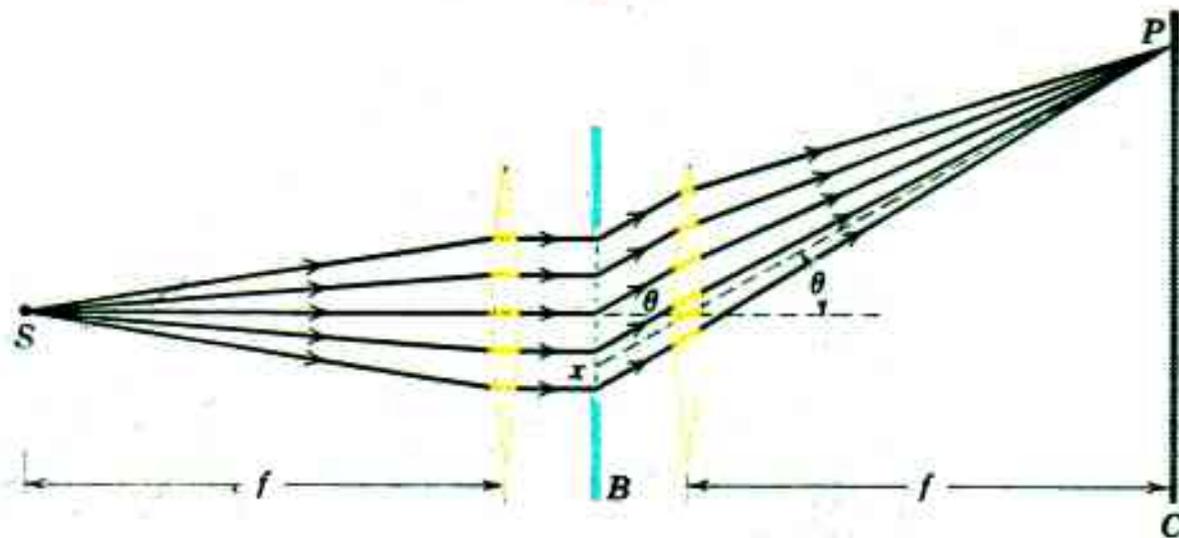
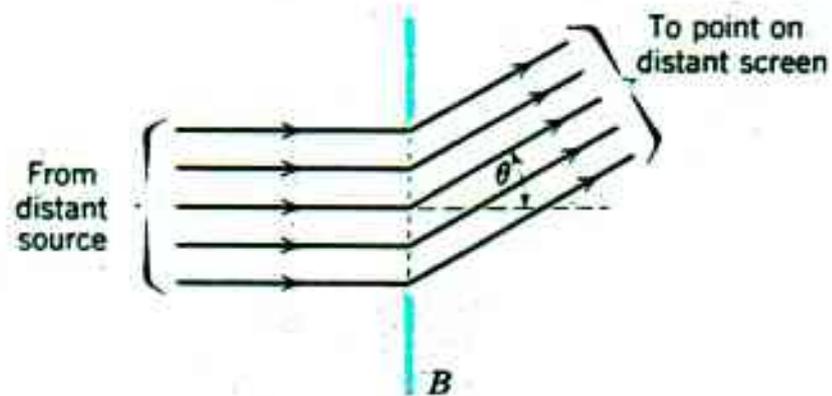
# Doppelspalt: Wo liegen die Maxima?



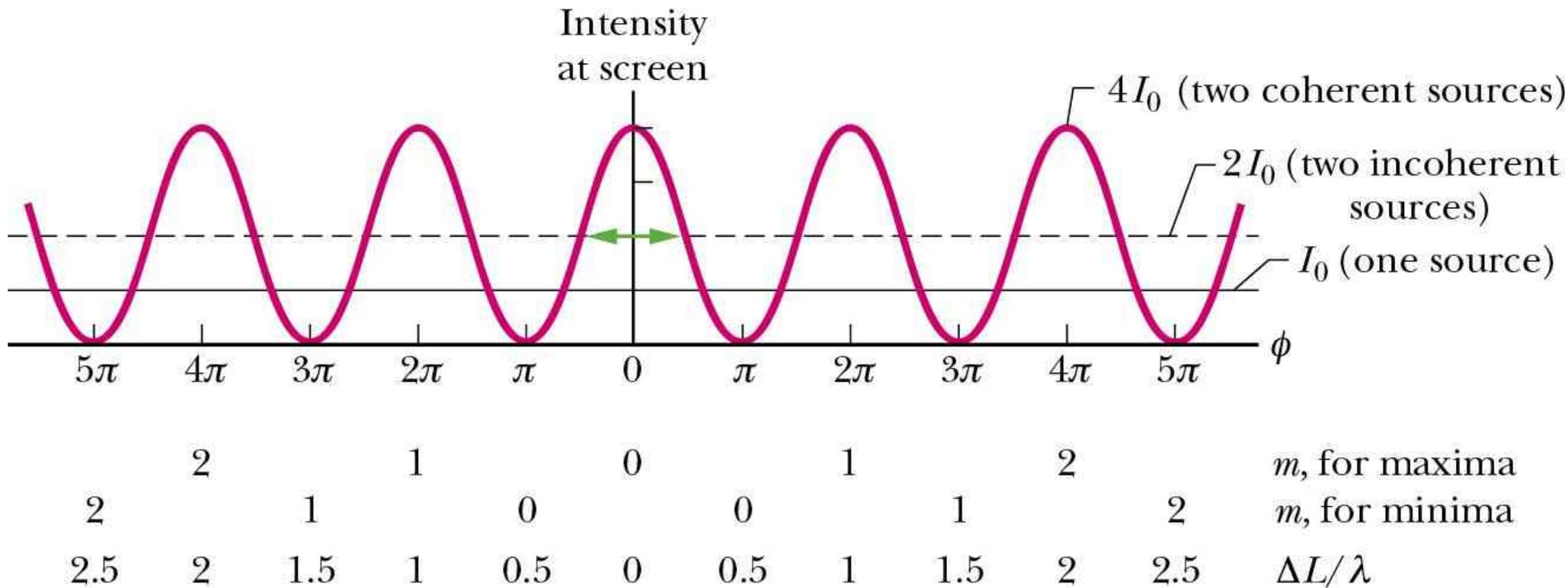
Fresnel



Fraunhofer

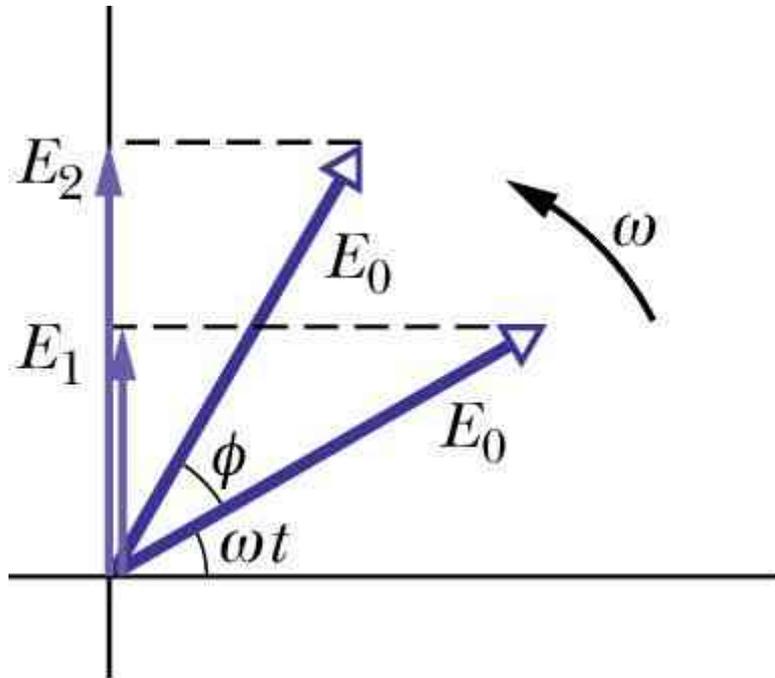


# Doppelspalt: Verlauf der Intensität

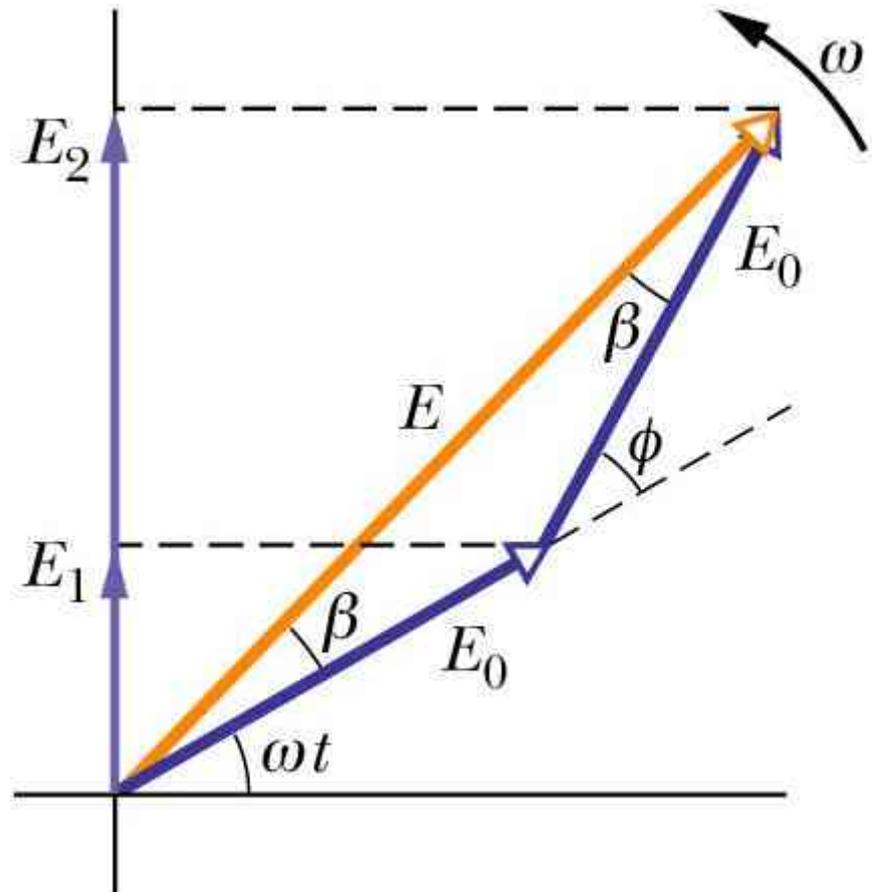


# Zeigerdiagramme

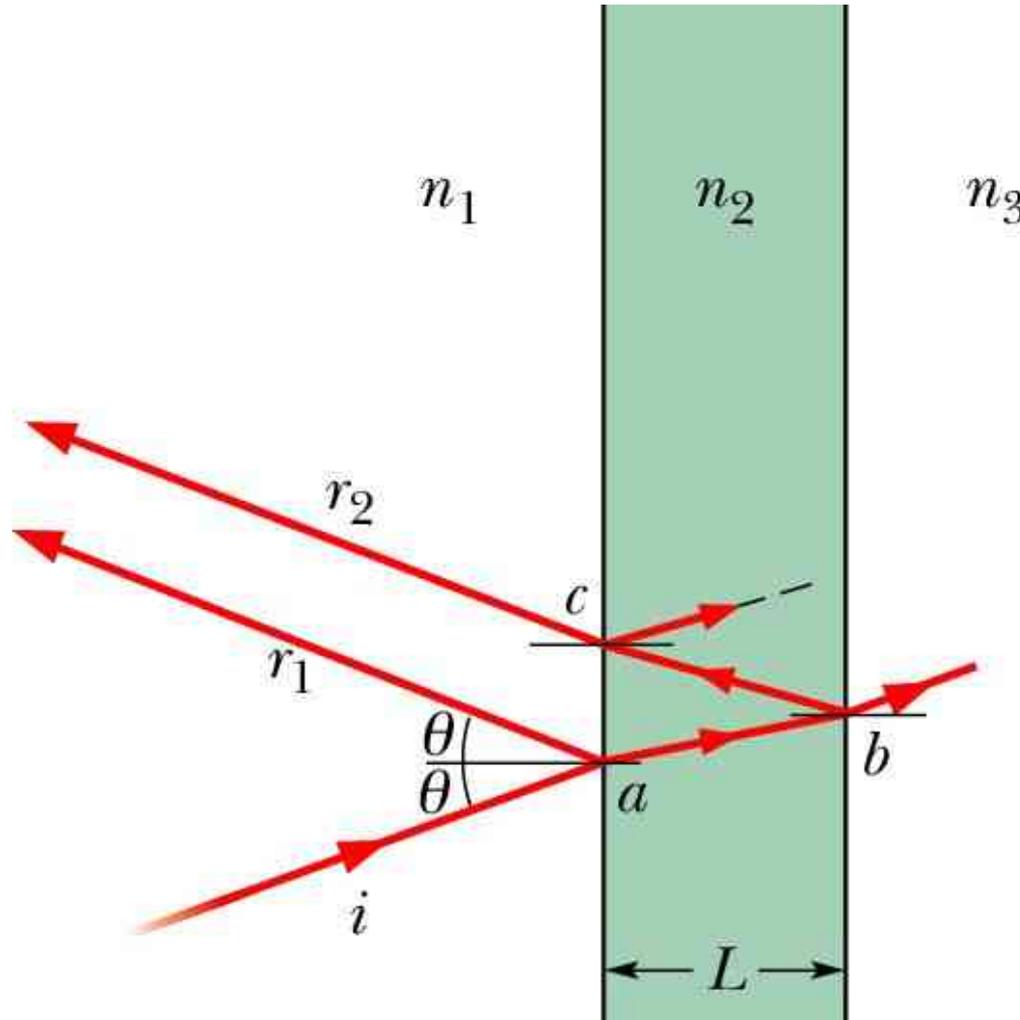
Feldstärken von Spalten



Vektorsumme der Feldstärken

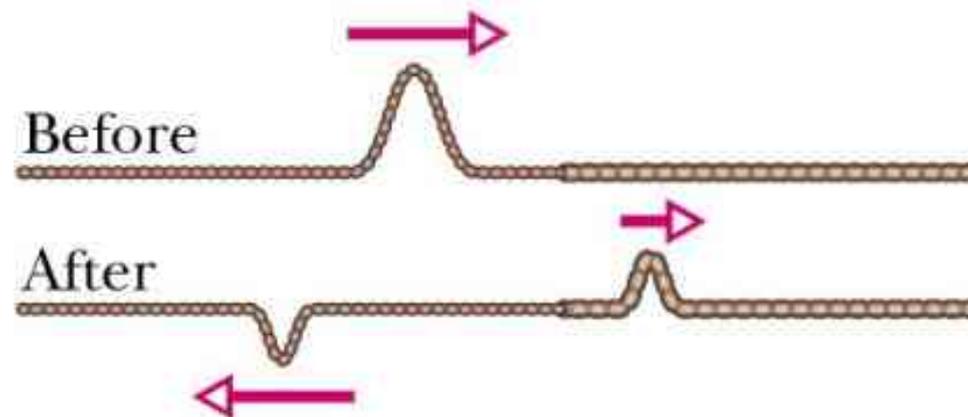
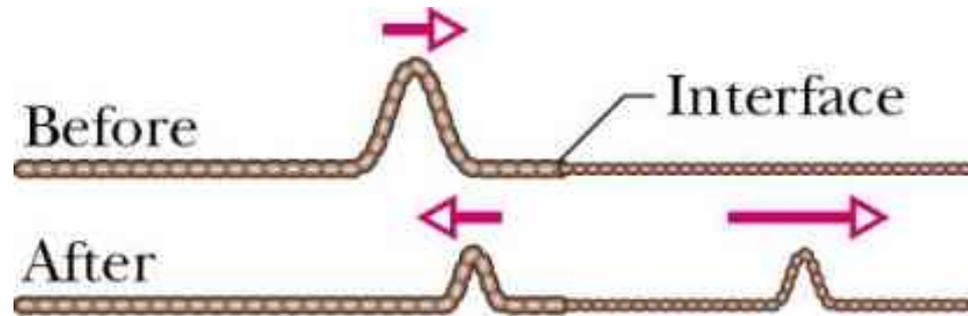


# Interferenz an dünnen Schichten

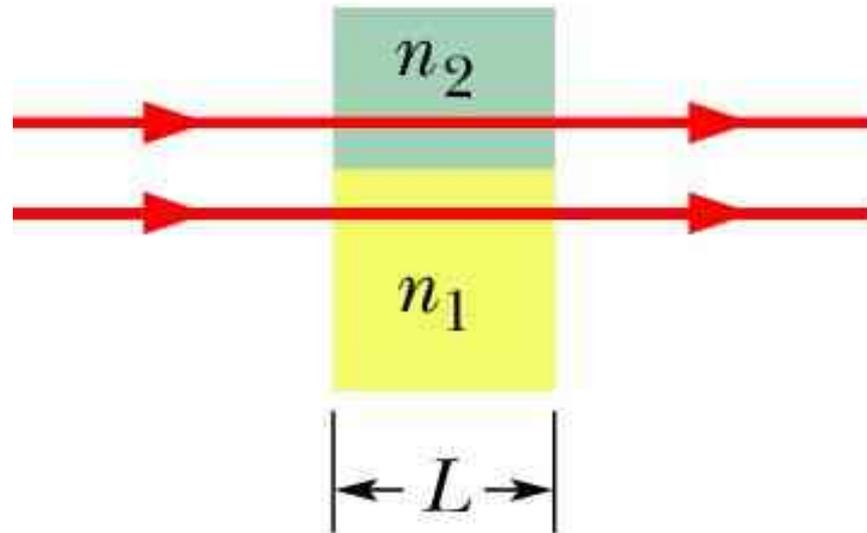


(Mehrstrahlinterferenz ignoriert)

# Komplikation I: Phasensprünge an Grenzflächen



## Komplikation II: $c = c(n)$



$$f = \frac{c}{\lambda} \rightarrow \lambda = \lambda(n) \rightarrow \Delta\phi = \Delta\phi(n, L)$$

optische Weglänge