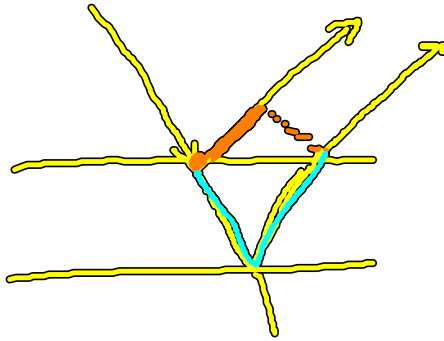
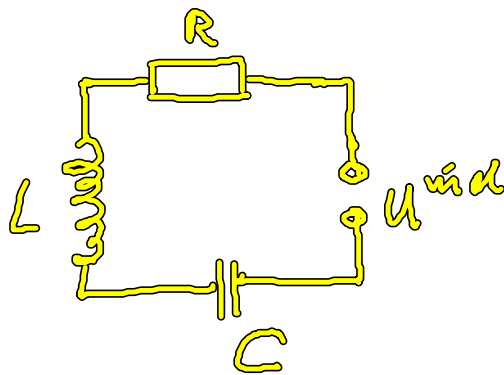
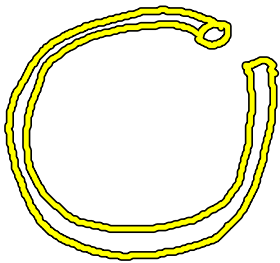
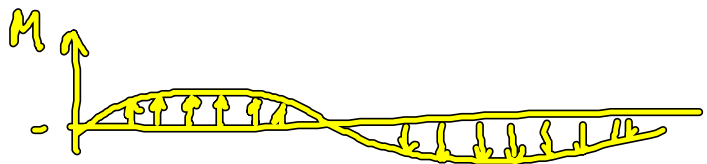
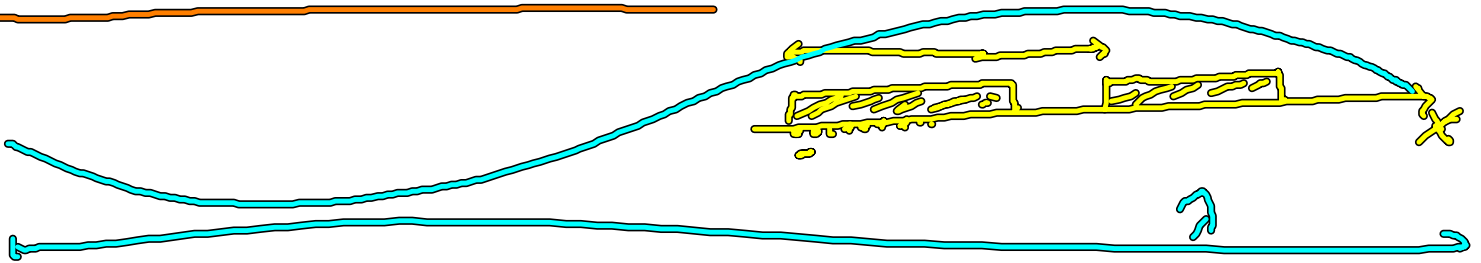


1.4 Elm. Wellen an Grenzflächen



1.5 Metamaterialien



Mechanik $m \ddot{x} + \beta \dot{x} + c x = F \cos \omega t$

$$\ddot{x} + \frac{\omega_0}{Q} \dot{x} + \omega_0^2 x = \frac{F}{m} \cos \omega t, \quad \omega_0^2 = \frac{c}{m}, \quad Q = \frac{m \omega_0}{\beta}$$

$$\omega_R = \omega_0 \sqrt{1 - \frac{1}{2Q^2}}, \quad Q = \text{Güte}$$

$$[L] = \frac{Vs}{A}, \quad [R] = \frac{V}{A}$$

$$[C] = \frac{As}{V}, \quad [U^{ind}] = V$$

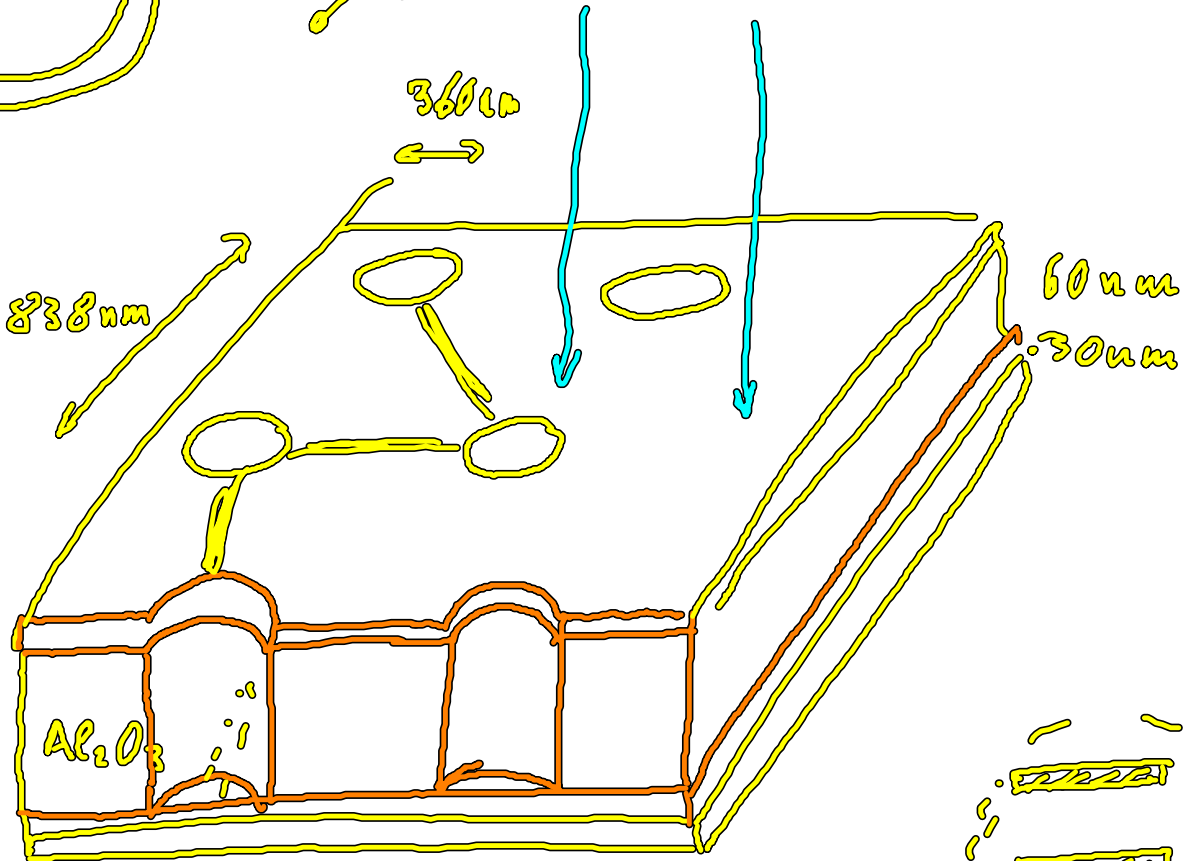
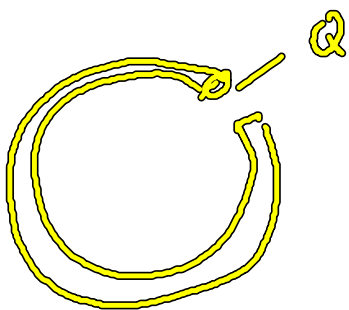
$$L \ddot{I} + R \dot{I} + \frac{1}{C} I = \dot{U}^{ind}$$

$$\ddot{I} + \frac{R}{L} \dot{I} + \frac{1}{LC} I = \frac{1}{L} \dot{U}^{ind} \Rightarrow \omega_0^2 = \frac{1}{LC}, \quad Q = \frac{\omega_0 L}{R}$$

$$\omega_R = \frac{1}{\sqrt{LC}} \sqrt{1 - \frac{R^2 C}{2L}}$$

~~$$= \frac{1}{\sqrt{LC}} \sqrt{1 - \frac{1}{2}}$$~~

$$Q = \sqrt{\frac{L}{RC}}$$



Soplin

