

Drudejev model

$$\langle p(t) \rangle = qE\tau(1 - e^{-t/\tau}) + \langle p(t=0) \rangle e^{-t/\tau}$$

konstantno polje:

$$\sigma = \frac{nq^2\tau}{m_e}$$

oscilirajoče polje:

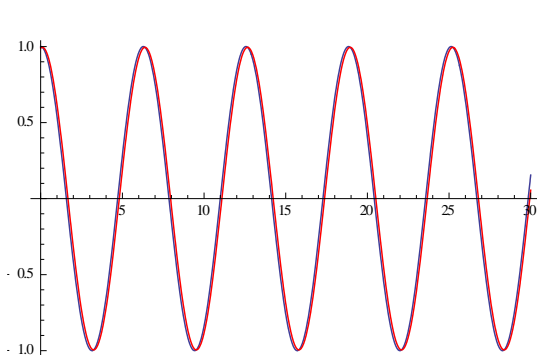
$$\sigma(\omega) = \frac{nq^2\tau}{m_e} \frac{1}{1 - i\omega\tau}$$

— $E = E_0 \cos(\omega t)$

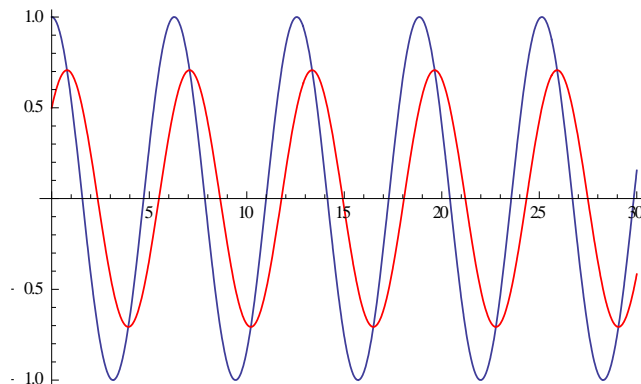
— $j = \frac{\sigma_0}{1 + \omega^2\tau^2} E_0 \cos(\omega t) + \frac{\sigma_0\omega\tau}{1 + \omega^2\tau^2} E_0 \sin(\omega t)$



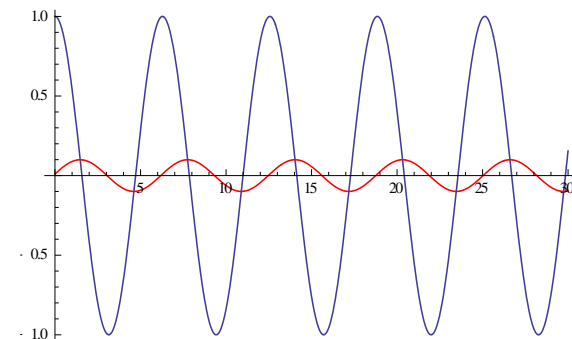
Paul Karl Ludwig Drude, 1863 – 1906
nemški fizik



$\omega\tau=0,1$



$\omega\tau=1$



$\omega\tau=10$