

## 5.5 Electrical current flow

Comparing Eq. (5.34) with

$$\vec{j} = \sigma \vec{E} \quad , \quad (5.35)$$

we find

$$\sigma = \frac{q^2 \tau n_e}{m^*} \quad ; \quad (5.36)$$

including the mobility

$$\mu_e := \frac{q\tau}{m^*} \quad , \quad (5.37)$$

we finally get

$$\sigma = q\mu_e n_e \quad . \quad (5.38)$$

Additional information and several illustrative graphics can be found in the [MaWi II script](#).