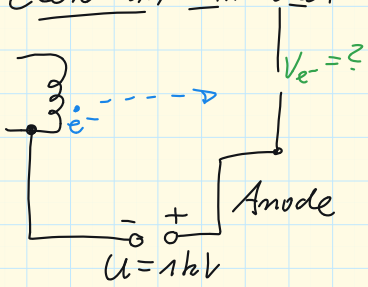
16.12.25
Phy Q1

Elektron in der Braunschen Röhre



Energieerhaltung

Beginne immer mit Text

$$E_{kin} = E_{el} \quad ; \; q = e$$

$$\frac{1}{2} m v^2 = e U \qquad | \cdot 2 : m$$

$$v^2 = \frac{2eU}{m} \qquad | \sqrt{\;}$$

FS S. 51
$m_e = 9{,}11 \cdot 10^{-31}$ kg

$$v = \sqrt{\frac{2eU}{m}} = \sqrt{\frac{2 \cdot 1{,}602 \cdot 10^{-19}\,C \cdot 1000\,V}{9{,}11 \cdot 10^{-31}\,kg}}$$

$$= 1{,}88 \cdot 10^7 \frac{m}{s}$$

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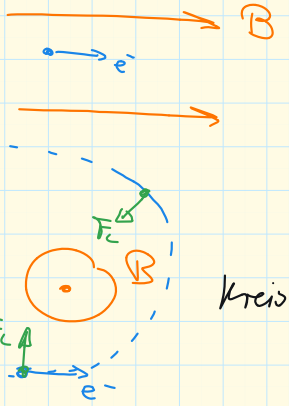
1) keine Änderung der Bewegung



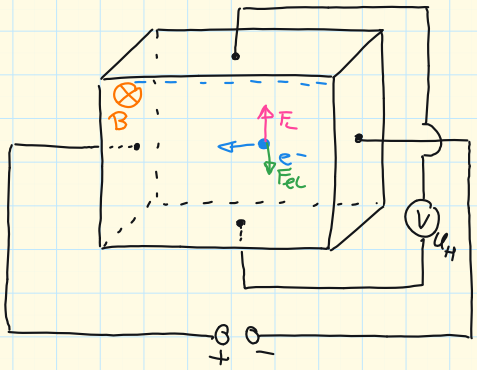
2)

Kreisbahn

HA: S. 175 A5

Elektronen im el. Feld + mag. Feld

$\Rightarrow$ Hall-Effekt



Hall-Spannung