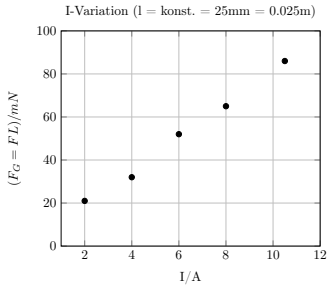
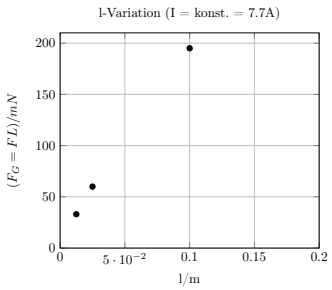
- Der Wien-Filter kann verschiedene Massen aussortieren.

I/A	0	2	4	6	8	10.5
m/g	0	2.1	3.2	5.2	6.5	8.6
$\frac{F_G = F_L}{mN}$	0	21	32	52	65	86



l/m	0	0.0125	0.025	0.1
m/g	0	3.3	6	19.5
$\frac{F_G=F_L}{mN}$	0	33	60	195



$F_L =$ I $\times$ L $\times$ B $=$ e $\times \frac{l}{t} \times B$

(Stromstärke $= \frac{Ladung}{Zeit}$) Weg, den das Elektron in einer Zeit zurücklegt

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$=$ e $\times$ v $\times$ B

1) $r = 5cm =$ m; $B = 1,12mT =$ T; $U_B = 240V \rightarrow m_e =$

2) $r = 4cm =$ m; $B = 1,5mT =$ T; $U_B = 300V \rightarrow m_e =$

3) $r = 3cm =$ m; $B = 2,175mT =$ T; $U_B = 360V \rightarrow m_e =$

4) $r = 3cm =$ m; $B = 2,375mT =$ T; $U_B = 400V \rightarrow m_e =$

Lorentz: $F_L = I \times l \times B$ bzw. $F_L = e \times v \times B$

(kompletter Draht) (einzelnes Elektron)

Elektrisch: $F_E = E \times Q = \frac{U}{d} \times Q$ bzw. (siehe 1.3)

siehe Beschreibung $F_L = F_E \Leftrightarrow e \times v \times B = \frac{U}{d} \times e$

$v = \frac{E}{B} = \frac{U_K}{B \times d}$

aus 1.7: $F_E = F_L$

$$v = \frac{U}{v \times d}$$

$$v = \frac{U}{B \times d}$$