

Aufgabe 2

$$\frac{\partial \sigma}{\partial \Omega} \Big|_{Rutherford} = \frac{z^2 \alpha^2 (c\hbar)^2}{4E^2 \sin^4(\frac{\vartheta}{2})}$$

$$\frac{\partial \sigma}{\partial \Omega} = \frac{\partial \sigma}{\partial \Omega} \Big|_{Rutherford} \cdot |F(\vec{q})|$$

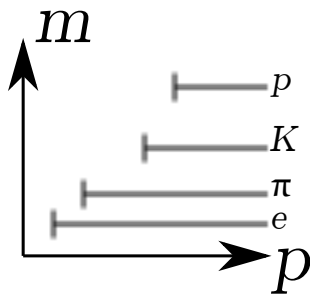
$$\frac{\partial \sigma}{\partial \Omega} \Big|_{Mott}^* = \frac{\partial \sigma}{\partial \Omega} \Big|_{Rutherford} (1 - \beta^2 \sin^2(\frac{\vartheta}{2}))$$

$$\frac{\partial \sigma}{\partial \Omega} \Big|_{Mott} = \frac{\partial \sigma}{\partial \Omega} \Big|_{Mott}^* \left(\frac{E'}{E} \right)$$

$$\frac{\partial \sigma}{\partial \Omega} = \frac{\partial \sigma}{\partial \Omega} \Big|_{Mott} \frac{G_E^2(Q^2) + \tau G_M^2(Q^2)}{1 + \tau} + 2\tau G_M^2(Q^2) \tan^2(\frac{\vartheta}{2})$$

$$\tau = \frac{Q^2}{3M^2 c^2}$$

Aufgabe 3



$$d \Rightarrow v$$

$$\cos(\vartheta) = \frac{1}{n\beta}$$

