

ES n° 22 pag 789

MOTO DI UNA CARICA IN UN CAMPO MAGNETICO

$$q_1 = q_2 = q$$

$$m_1 = 2,3 \cdot 10^{-8} \text{ kg}$$

$$m_2 = 3,9 \cdot 10^{-8} \text{ kg}$$

$$r_1 = 0,15 \text{ m}$$

$$r_2 = ?$$

$q \cdot B$ sono UGUALI per le due particelle

$$r_1 = \frac{m_1 v_1}{qB}$$

$$r_2 = \frac{m_2 v_2}{qB}$$

$$qB = \frac{m_1 v_1}{r_1} = \frac{m_2 v_2}{r_2} \rightarrow r_2 = r_1 \cdot \frac{m_2}{m_1} \cdot \frac{v_2}{v_1}$$

$$v_1 = \sqrt{\frac{2qV}{m_1}}$$

$$v_2 = \sqrt{\frac{2qV}{m_2}}$$

$$\rightarrow \frac{v_2}{v_1} = \sqrt{\frac{2qV}{m_2} \cdot \frac{m_1}{2qV}} = \sqrt{\frac{m_1}{m_2}}$$

$$r_2 = r_1 \cdot \frac{m_2}{m_1} \cdot \sqrt{\frac{m_1}{m_2}} = r_1 \sqrt{\frac{m_2}{m_1}} = 0,15 \text{ m} \sqrt{\frac{3,9 \cdot 10^{-8} \text{ kg}}{2,3 \cdot 10^{-8} \text{ kg}}} =$$

$$r_2 = 0,195 \text{ m} \approx 20 \text{ cm}$$