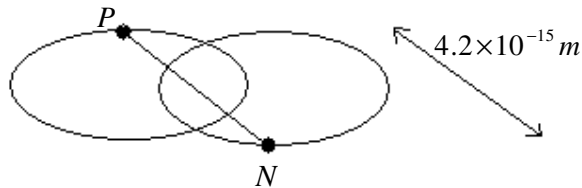


The Deuteron

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Orbit of the proton and the neutron:



Mass and frequency of the center of mass:

$$m_D = 3.34 \times 10^{-27}; \quad f = \frac{-h + \sqrt{h^2 + 4km_D^2 c^2}}{2m_D k} = 4.53 \times 10^{23}$$

Acceleration:

$$g = \frac{kf^3}{w} = 6.2 \times 10^{28}; \quad g = \frac{2\pi.c^2}{n^3 x_p} = 19 \approx 20$$

Kinetic energy of the proton:

$$E_k = 1.1 MeV = \frac{1}{2} m_p v^2 \quad \Leftrightarrow \quad v = 1.45 \times 10^7 \approx 1.5 \times 10^7$$

$$n = \frac{c}{v} = 20; \quad R = \frac{20.x_p}{2\pi} = 4.2 \times 10^{-15}$$

$x_p = 1.32 \times 10^{-15}$ -- Wavelength of the proton

n -- Number of wavelengths in the perimeter of the orbit

We can verify the values by the formula:

$$m_p v R = \frac{h}{2\pi}$$

For He^3 :

$$2.6MeV = \frac{1}{2} m_p v^2 \quad \Leftrightarrow \quad v = 2.23 \times 10^7$$

$$n = \frac{c}{v} = 13$$

$$3 \times m_p = 5 \times 10^{-27} ; \quad f = 6.82 \times 10^{23}$$

$$g = 2.1 \times 10^{29} ; \quad n = 13$$

$$R = 2.73 \times 10^{-15}$$

For He^4 :

$$7MeV = \frac{1}{2} m v^2 \quad \Leftrightarrow \quad v = 3.66 \times 10^7 ; \quad n = 8$$

$$4m = 6.7 \times 10^{-27} ; \quad f = 9.1 \times 10^{23} ; \quad g = 4.94 \times 10^{29}$$

$$n = 9 \approx 8 ; \quad R = 1.7 \times 10^{-15}$$

Electron gravitational constant

$$G = \frac{q^2}{4\pi\epsilon_0 m^2} = 2.78 \times 10^{32}$$

$$v = \sqrt{\frac{Gm}{R_B}} = \frac{c}{137} ; \quad R_B = \frac{137x}{2\pi}$$

$$w_0 = c^2 \frac{w-v}{c^2 - vw} ; \quad w = c - \Delta w ; \quad w_0 = c - \Delta w_0$$

$$\Leftrightarrow \quad \Delta w_0 = \Delta w$$

Electron magnetic moment

Theoretical value: $\mu_T = 9.273 \times 10^{-24}$

Experimental value: $\mu = 9.284764 \times 10^{-24}$

$$\mu = \frac{\mu_T}{\sqrt{1 - v^2 / c^2}}$$

$$v = 1.5 \times 10^7$$

This is the orbital speed of the proton in the deuteron.