EGUnitsCorrection.xmcd Jerry E. Bayles Jan. 31, 2013

$\alpha \equiv 7.297353080 \cdot 10^{-03}$ $r_e \equiv 3.861593223 \cdot 10^{-13} \cdot m$

$\mu_o := 1 \cdot 10^{-07} \cdot 4 \cdot \pi \cdot henry \cdot m^{-1}$ $\mu_o = 1.2566370614 \times 10^{-6} \cdot henry \cdot m^{-1}$

$c_{vel} := 2.997924580 \cdot 10^{08} \cdot \frac{m}{sec}$ $m_e \equiv 9.109389700 \cdot 10^{-31} \cdot kg$

$h \equiv 6.626075500 \cdot 10^{-34} \cdot joule \cdot sec$ $l_q := \alpha \cdot r_e$

$turns := m_e \cdot \alpha \cdot (c_{vel})^2 \cdot h^{-1} \cdot sec$ $turns = 9.0165348853 \times 10^{17}$ Turns completed every second.

$L_{GQ} := \frac{\mu_o \cdot (r_e)^2 \cdot (turns)^2}{l_q \cdot \sqrt{\alpha}}$ $L_{GQ} = 6.328600517 \times 10^{20} \cdot henry$ $\frac{L_{GQ}}{\mu_o} = 5.0361402757 \times 10^{26} m$

(Size of universe radius)

Let: $F_{QK} := 2.964371450 \cdot 10^{-17} \cdot newton$ which is the electrogravitational force constant.

$CFU := \frac{1 \cdot m}{\alpha^2 \cdot L_{GQ}} \cdot \frac{1}{F_{QK}}$ $CFU = 1.0009882413 \cdot \left(\frac{1}{newton} \cdot \frac{m}{henry}\right)$

$f_{LM} := 1.003224805 \cdot 10^{01} \cdot Hz$ $R_{n1} \equiv r_e \cdot \alpha^{-1}$ $R_{n1} = 5.2917724833 \times 10^{-11} m$

$F_{EGQ} := \frac{h \cdot f_{LM}}{R_{n1}} \cdot \mu_o \cdot \frac{h \cdot f_{LM}}{R_{n1}}$ $F_{EGQ} = 1.9829730879 \times 10^{-50} \cdot newton \cdot \frac{henry}{m} \cdot newton$

The above equation is the electrogravitational equation without the correction constant CFU. When F_{EGQ} is multiplied by the correction constant CFU, we arrive at the force of one newton unit and the correct force for two electrons separated by the radius of the lowest energy level of atomic hydrogen at n=1.

$F_{EGQC} := F_{EGQ} \cdot CFU$ $F_{EGQC} = 1.9849327437 \times 10^{-50} \cdot newton$

Next, the standard gravitational force at the same R_{n1} parameter used above is derived.

Let: $G_N \equiv 6.672590000 \cdot 10^{-11} \cdot newton \cdot m^2 \cdot kg^{-2}$ **SI units of gravitational constant.**

$$F_{GN} \equiv \frac{G_N \cdot m_e^2}{R_{n1}^2} \qquad F_{GN} = 1.9772913939 \times 10^{-50} N \qquad \frac{F_{EGQC}}{F_{GN}} = 1.0038645542$$

The error between the new electrogravitational equation and the standard Newtonian derivation is shown above.

Below is the more correct electrogravitational constant that can be used to replace the SI standard gravitational constant.

$$G_{NE} := \left(\alpha \cdot m^2 \cdot sec^{-2}\right)^2 \cdot \mu_o \qquad G_{NE} = 6.6917635029 \times 10^{-11} \cdot \frac{m^4}{sec^4} \cdot \frac{henry}{m}$$

Corrected G_{NE}: (Multiplying by CFU)

$$G_{NEC} := G_{NE} \cdot CFU \qquad G_{NEC} = 6.6983765798 \times 10^{-11} newton \cdot \frac{m^2}{kg^2}$$

$$F_{GNC} := \frac{G_{NEC} \cdot m_e^2}{R_{n1}^2} \qquad F_{GNC} = 1.984932742 \times 10^{-50} newton$$

$$\frac{F_{GNC}}{F_{EGQC}} = 0.9999999991$$

The agreement between the corrected Newtonian force equation and the electrogravitational force equation with the corrected units modifier constant is extremely small as shown above. This suggests that the gravitational constant not only needs different units but also a correction in magnitude in the plus direction as shown below.

$$\frac{G_{NEC}}{G_N} = 1.0038645533$$

END