8π-1 and the golden ratio, trick or truth ?

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Just imagine the Universe as a growing sphere of layered information with only three dimensions: two space dimensions and one dimension which is both space and time.

The information describing our "present" moment is contained in a 2D layer of that sphere and past/present/future co-exist as concurrent layers; each layer is scaling up with time.

From this model, I have derived simple equations involving two ratios: **Phi** (the golden ratio) and **8π-1** (a ratio I have discovered).

In this short essay, I will simply present some of these equations. These could be dismissed as simple numerology or pure coincidences but there is a slight chance that they might be correct. If that was the case, it would show that our Universe is a lot simpler than we might think and that it could be described with simple mathematics, no extra dimensions and no fudge factors.

1) The golden ratio is fundamental to the Universe:

(h = Planck constant in J.s and c = speed of light in m/s)

Electron's mass: (ϕ has a dimension of Time in sec)

$$m_e = \frac{2h}{\Phi \times 10^{-20} \times c^2} = 9.112 \times 10^{-31} \text{ Kg (official value} = 9.109 \times 10^{-31} \text{ Kg)}$$

Electron's Compton wavelength: (ϕ has a dimension of Time in sec)

$$\lambda_e = \frac{\Phi \times 10^{-20} \times c}{2} = 2.4253 \times 10^{-12} \text{ m (official value} = 2.4263 \times 10^{-12} \text{ m)}$$

Electron's Compton frequency: (ϕ has a dimension of Time in sec)

$$v_e = \frac{c}{\lambda_e} = \frac{2}{\Phi \times 10^{-20}} = 1.2360 \times 10^{20} \text{ Hertz (official value} = 1.2356 \times 10^{20} \text{ Hertz)}$$

Electron's energy: (ϕ has a dimension of Time in sec)

$$E_e = m_e c^2 = h v_e = \frac{2h}{\Phi \times 10^{-20}} = 8.190 \times 10^{-14} \text{ Joules (official value} = 8.186 \times 10^{-14} \text{ Joules)}$$

Electron's charge: (ϕ is dimensionless)

$$e = \sqrt{\frac{h \times \left(1 - \frac{1}{8\pi}\right)}{\Phi^2 \times 8\pi \times \mu_0 \times c}} = 1.60209 \times 10^{-19} \text{ C (official value} = 1.60217 \times 10^{-19} \text{ C)}$$

Fine structure constant: (φ is dimensionless)

$$\alpha = \left(\frac{e}{q_P}\right)^2 = \frac{h \times \left(1 - \frac{1}{8\pi}\right) \times \mu_0 \times c}{\Phi^2 \times 8\pi \times \mu_0 \times c \times 2h} = \frac{\left(1 - \frac{1}{8\pi}\right)}{\Phi^2 \times 16\pi} = 7.2966 \times 10^{-3} \text{ (official value } 7.2973 \times 10^{-3})$$

2) The 8π-1 ratio is fundamental to the Universe:

Proton-to-Electron mass ratio:

$$M_{pr}/m_e = \left((8\pi - 1) + \frac{1}{(8\pi - 1)} + \frac{1}{(8\pi - 1)^2} + \frac{1}{(8\pi - 1)^3} + \ldots\right)^2 \times \pi = 1836.19 \text{ (official value 1836.15)}$$

Gravitational coupling constant :

$$\alpha_G = \left(\left(8 - \frac{1}{\pi}\right) \times 10^{-20}\right)^2 = 5.900 \times 10^{-39} \text{ (official value = } 5.905 \times 10^{-39})$$

3) The Universe is scaling up with time: (at our present time the scale factor is 10^{20})

We show that the proton's diameter is a scaled up version of the Planck length. Starting with the Planck Length, then using the 10^{20} scale factor and the 8π-1 ratio (in this case 8π-1/8π), we get a correct value for the proton's radius measured with a muon but more astonishingly by dividing that value again by the same expression we get the correct value for the proton's radius measured with an electron.

Proton's radius (measured with muon):

$$Rpm = \frac{l_P \times 10^{20}}{2 \times \left(1 - \frac{1}{8\pi}\right)} = 0.8416 \times 10^{-15} \text{ m} \text{ (official value } 0.8418 \times 10^{-15} \text{ m)}$$

Proton's radius (measured with electron):

$$Rpe = \frac{Rpm}{1 - \frac{1}{8\pi}} = \frac{0.8416 \times 10^{-15}}{0.9602} = 0.8765 \times 10^{-15} \text{ m} \text{ (official value } 0.8768 \times 10^{-15} \text{ m)}$$

Using the 8π-1 ratio again (in this case 8π-1/π) and the 10^{20} scale factor, we show that the proton's mass is a scaled down version of the Planck mass.

Proton's mass in relation to the Planck mass:

$$M_{pr} = m_P \times 10^{-20} \times \left(8 - \frac{1}{\pi}\right) = 1.6719 \times 10^{-27} \text{ Kg (official value 1.6726 x } 10^{-27} \text{ Kg)}$$

Proton's mass and proton's diameter in relation to the Planck Constant and the speed of light:

$$D_{pr} \times M_{pr} = 8 \text{ x l}_p \text{ x m}_p = 8 \times \sqrt{\frac{hG}{2\pi c^3}} \times \sqrt{\frac{hc}{2\pi G}} = \frac{4h}{\pi \times c}$$

4) The Universe is a growing sphere of information and is fundamentally holographic:

The Universe information sphere is composed of Planck size Universal Bits, the inverse of the surface area in Planck units gives a correct value for the Dark Energy Density:

Value of Dark Energy Density (in Planck units):

$$\rho\Lambda = \frac{1}{4\pi \times R^2} = \frac{1}{8.14 \times 10^{122}} = 1.23 \times 10^{-123} \text{ (WMAP value = 1.27 } \pm 0.07 \times 10^{-123})$$

R = age of the Universe in Planck units

References:

[1] Patrick Tonin, "The 3D Universe Theory", www.vixra.org/abs/1304.0094