1.0 Abstract

Sphere Theory, is a theory that the universe is made of spheres, that, are made of spheres. In fact ,it is a theory of spheres all the way down. Part of the theory is that there is radiation that creates stable resonances that is similar to Bremsstrahlung and Cherenkov radiation. In this paper it is shown that this same structure that is used to predict mass ratios for the proton, electron, muon, and tau to the neutron, and predictions for the Sommerfeld fine structure constant, and the von Klitzing constant, can also be used to predict a more accurate value for the Gravitational constant, with the accuracy of the Planck constant and neutron mass being the limiting factor. The value predicted for the Gravitational constant is as follows. 6.6738480×10^-11 m^3/kgs^2.

2.0 Calculations

When calculating the mass ratio of the proton to the neutron the following equations were used in the paper An Electro Magnetic Resonance in 9 Dimensions that gives Mass Ratio of Proton to Neutron; (1)

$$\frac{\lambda_p}{\lambda_n}\frac{(-\beta^2(1-\beta^2)-(\vec{\beta}\times\dot{\vec{\beta}})^2)}{\sqrt{3}} = \int_0^{pi/2}\left(\frac{Cos\theta}{2}\right)^9 d\theta \qquad [11]$$

Where $\frac{\lambda_n}{\lambda_p}$ is defined below.

The Energy levels for the Bohr hydrogen atom is as follows.

$\frac{1}{\lambda_x} = R_\infty\left(\frac{1}{n_1^2}-\frac{1}{n_2^2}\right)$ where $R_\infty = \frac{m_e q^4}{8\epsilon_0^2 h^3 c}$ and where n_1 and n_2 are any two different positive integers (1, 2, 3, ...), and λ is the wavelength (in vacuum) of the emitted or absorbed light.

We will called λ_p for the electron and λ_n for the neutron. It is not possible to measure these levels, but we can see if these wavelengths follow a pattern for the masses of particles.

It is proposed that the ratio of the mass of the proton to the neutron, and of course other particles is related to the ratio the energy levels of a similar process to the Bohr hydrogen, but at a deeper level. It is not expected that R_∞ is not the same number for this deeper level, but this number does not need to be known since we will be taking ratios of the wavelengths and the R_∞ ratio will become one. For the proton to neutron orbital energy ratio the following equation is proposed.

$$\frac{\lambda_n}{\lambda_p} = \frac{R_\infty(\frac{1}{n_{1p}^2} - \frac{1}{n_\infty^2})}{R_\infty(\frac{1}{n_{1n}^2} - \frac{1}{n_\infty^2})} \quad [12]$$

The following values are substituted in. $n_{1p} = 1$, $n_\infty = \infty$, $n_{1n} = 1$, $n_\infty = \infty$ which yields

$$\frac{\lambda_n}{\lambda_p} = \frac{R_\infty(\frac{1}{1^2} - \frac{1}{\infty^2})}{R_\infty(\frac{1}{1^2} - \frac{1}{\infty^2})} = 1 \quad (1)$$

In the paper Evidence for Granular Spacetime (2) it was found that particles had N spheres covering the outside of the Planck Sphere, which is the sphere packing our level of the universe. This value is

$$N = 2\pi^3 hc / G(Mn)^2 \quad [3]$$

Where substituting values from the appendix gives a value of N.

$$N = 6.57920(31) * 10^{40} \quad (2)$$

A similar equation is used for calculating the value of N, that was used for calculating the mass ratio of the neutron to the proton, but in this case it is energy ratio of the graviton to the neutron. The equation for the proton to the neutron is as follows.

$$\frac{\lambda_p}{\lambda_n} \frac{(-\beta^2(1-\beta^2) - (\vec{\beta} \times \dot{\vec{\beta}})^2)}{\sqrt{3}} = \int_0^{pi/2} (\frac{Cos\theta}{2})^9 d\theta \quad (1) \quad [11]$$

The individual components on the left side of the equation are not known. It is proposed that the equation is as follows.

$$\frac{1}{N} = \frac{12^{0.5}}{pi} \frac{\sqrt{2}^{435}}{\sqrt{3}^{434}} \int_0^{pi/2} (\frac{Cos\theta}{2})^9 d\theta \quad [1]$$

$N = 6.5794261465980806655589380232242582061361 * 10^{40}$

Then substituting this value of N into the equation below, with the latest CODATA values

$$N = 2\pi^3 hc / G(Mn)^2 \qquad [3]$$

We obtain a value of the gravitational constant “G”, as follows.

$$G = 6.6738480 \times 10^{-11} \frac{m^3}{kgs^2}$$

This is within one sigma of the Codata value of

$$G = 6.67408(31) \times 10^{-11} \frac{m^3}{kgs^2}$$

3.0 Discussion

The value for G, determined above of $G = 6.6738480 \times 10^{-11} \frac{m^3}{kgs^2}$ is well within the limits of the 2014 CODATA value of $G = 6.67408(31) \times 10^{-11} \frac{m^3}{kgs^2}$. The problem with this, is that the CODATA value is not very precise. It will probably be at least 12 more years before more precision can be added to the value, if even then.

It is interesting to note, that the value of the energy ratio of the proton to the neutron, does not include pi, but the energy ratio of the neutron to the graviton does. Likely this has something to do with one being a hadron and the other a boson.

4.0 References

1. http://vixra.org/pdf/1612.0302v3.pdf
2. http://vixra.org/pdf/1601.0234v4.pdf