Relativistic Equation for the Inverse Fine-structure Constant using Spinning Sphere Theory

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Abstract

This paper proposes an equation for the fine structure constant, and relativistic contribution to the inverse fine structure constant. This relativistic contribution gives a prediction of the fine structure constant within one sigma of the fine structure constant and accuracy to 11 digits.

In "The Aether Found, Discrete Calculations of Charge and Gravity with Planck Spinning Spheres and Kaluza Spinning Spheres" (1), it was shown that spinning spheres can unite the gravitational and electromagnetic force with spinning spheres. The equation 4, developed in "The Aether Found, Discrete Calculations of Charge and Gravity with Planck Spinning Spheres and Kaluza Spinning Spheres" can be used to predict a value of the fine structure constant constant. This constant is found to depend only on pi and the ratios of the rest masses of the electron, neutron, and proton.

This paper proposes an equation for the fine structure constant, and relativistic contribution to the fine structure constant. This relativistic contribution gives a prediction of the fine structure constant within one sigma of the fine structure constant and correlation to 10 digits.

1.0 Developing the fine structure constant equation.

The following equation is proposed for the fine structure constant.

$$\sigma = T\pi^3 \frac{Me}{4Mn}$$

Equation 2.1   Fine structure constant=

Where T^2 is proposed to be as follows in Equation 2.2

Equation 2.2

$$T^2 = (\frac{1}{\sqrt{1-(2^{0.5}\frac{\pi Me}{3*3Mn})^2}}\frac{Mp-Me}{Mn})^2 + (\frac{1}{\sqrt{1-(2^{0.5}\frac{\pi Me}{3*3Mn})^2}}Mn/Mn)^2 + (\frac{1}{\sqrt{1-(2^{0.5}\frac{\pi Me}{3*3Mn})^2}}Mn/Mn)^2$$

Which simplifies to

Equation 2.2a

$$T^2 = \frac{1}{\sqrt{1-(2^{0.5}\frac{\pi Me}{3*3Mn})^2}}(\frac{Mp-Me}{Mn})^2 + 2)^2 = 2.996163018542$$

Where q=elementary charge, h=Planck's constant, Ɛ=dielectric permittivity, c=speed of light, Me=Mass of the Electron, Mp=Mass of Proton, and Mn=Mass of Neutron, and T is defined below.

Equation 2.1 was developed from Equation 4.0 in of The Aether Found, Discrete Calculations of Charge and Gravity with Planck Spinning Spheres and Kaluza Spinning Spheres (1)

Equation 4.0 (1) $$\left[(e^2) * \frac{1}{h*c*2*\varepsilon}\right] / \left[T * (\pi^3) * \frac{Me}{4*M}\right] = 1$$

The following is an image of a sphere made of spheres.

dreamstime.com(6)

2.0 Calculation of Fine Structure Constant

Using equation 2.1 the following is calculated using the Codata values from 2014 for the mass ratios of the Me/Mn, Mp/Mn, and Mn/Mn.

Codata year	Inverse Fine Structure Constant Equation 2.1	Inverse Fine Structure Constant Codata(2)
2018	137.035999171	137.035999084

Table (2.1)

We see the values in Table (2.1) correlate strongly with the measured fine structure constant and the fine structure constant calculated from Equation 2.1.

4.0   Discussion

The predicted values of Fine Structure are close to the limits of the Codata value. Although this does not prove that equation 2.1 and 2.2 is correct, the values predicted leave open the possibility that the equation could be correct.

The calculated values are within the values measured using the Quantum Hall affect. This a new and different method of derived and empirical calculation for the fine structure constant. It does not have the appearance of random number manipulation like numerology. The calculations are part of a new derivation to unite the forces of gravity and electromagnetic force through a polynested spinning sphere that has the appearance of both string theory and quantum foam theory. It is not unexpected that there could be relativistic effects for the fine structure constant. It is also not unexpected that pi should be part of the equation for the fine structure constant, nor that it should have aspects that hint at wrapped up dimension of String Theory, nor is in unexpected that there should be undulations proposed by Quantum Foam theory. These undulations rather appear to be patterns of differences in rotation like Calabi Yau, rather than a physical differences in structure.

This paper proposes an equation for the fine structure constant, and proposes a second order relativistic contribution to the fine structure constant. Richard Feynman, wrote of the fine structure as follows.

"There is a most profound and beautiful question associated with the observed coupling constant, the amplitude for a real electron to emit or absorb a real photon. It is a simple number that has been experimentally determined to be close to 0.08542455. (My physicist friends won't recognize this number, because they like to remember it as the inverse of its square: about 137.03597 with about an uncertainty of about 2 in the last decimal place. It has been a mystery ever since it was discovered more than fifty years ago, and all good theoretical physicists put this number up on their wall and worry about it.) Immediately you would like to know where this number for a coupling comes from: is it related to pi or perhaps to the base of natural logarithms? Nobody knows. It's one of the greatest damn mysteries of physics: a magic number that comes to us with no understanding by man. You might say the "hand of God" wrote that number, and "we don't know how He pushed his pencil." We know what kind of a dance to do experimentally to measure this number very accurately, but we don't know what kind of dance to do on the computer to make this number come out, without putting it in secretly!"
— Richard Feynman, QED: The Strange Theory of Light and Matter

Equation 2.1 shows how the "hand of God" possibly wrote the number. We may now, even know how to dance.

The value of 137.035999084 for CODATA year 2018 and the numbers predicted using equation 4.0 of 137.035999171 are within the sigma limits of the mass ratios of the proton neutron and electron neutron. We still need an increase in precision for the mass ratios of the mass ratios of particles.

5.0 References

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