1.0 Abstract

In "Calculation of the Planck Constant" (1), an alternative method for calculating the Planck constant was derived using the Rydberg constant.

2.0 The Equation for Planck's Constant

The equation for Planck's Constant, developed in "Calculation of the Planck Constant"(1)

Equation 4.0 (1) $$h = \frac{T^2 \pi^6 cMe^3}{32 Mn^2 R}$$

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, R=Rydberg constant at infinity and T is defined below.

Equation 2.1 $$T^2 = \frac{((Mp - Me)^2 + Mn^2 + Mn^2)}{Mn^2}$$ (2)

3.0 Calculation of Fine Structure Constant

Codata year	Planck Constant Equation 4.0	Planck Constant Codata(3)	Ratio of Equation 4.0 to Codata value
1969	6.6265065298E-34	6.62618600000E-34	1.00004837319.E+00
1973	6.6261853267E-34	6.62617600000E-34	1.00000140756.E+00
1986	6.6260744846E-34	6.62607550000E-34	9.99999846753.E-01
1998	6.6260686272E-34	6.62606876000E-34	9.99999979958.E-01
2002	6.6260691178E-34	6.62606930000E-34	9.99999972505.E-01
2006	6.6260687830E-34	6.62606896000E-34	9.99999973289.E-01
2010	6.6260693364E-34	6.62606957000E-34	9.99999964745.E-01
2014	6.6260698020E-34	6.62607004000E-34	9.99999964078.E-01

Table 2.0 Planck constant table.

4.0 Discussion

The predicted values of Planck's Constant close are close to the limits of the Codata value. Although this does not prove that equation 4.0 is correct, the values predicted leave open the possibility that the equation could be correct.

Note that as time goes on the prediction of equation 4.0 becomes more regular. After 1998 the preciseness maxes out, perhaps indicating that there is another factor necessary to improve preciseness. It is likely that there is a 2nd order affect, for Equation 4.0, that is necessary to improve the calculated Planck constant.

Please note, that in "Mathematical Geometric Origin of Masses of Particles Proton and Electron" (4), the prediction of the proton/neutron mass ratio is within 0.99999998318.

Section 1 Proton/Neutron Mass Ratio

Equation 1 $$y(1-y) = \sqrt{3}/2 \int_0^1 x^4 (1-x)^4 dx$$

Where y~~0.998623461644084 and y~~0.00137653835591585

One can notice that the first y=0.998623461644084 is very close to the Codata Value of the ratio of the mass of the proton to the mass of the neutron of 0.998623478. Within 0.99999998318.

This appears to be very close to the square root of the calculated vs measured Planck Constant above in Table 2.0, for values when the more precise constants are used in 1998 and afterwards. 1998(0.999999979958) 2002 (0.999999972505), 2006 (0.999999973289), 2010(0.999999964745), and 2014 (0.999999964078)

5.0 References

1 http://vixra.org/pdf/1407.0148v2.pdf
2 http://vixra.org/pdf/1403.0502v6.pdf
3 http://physics.nist.gov/cuu/Constants/index.html
4 http://vixra.org/pdf/1502.0193v2.pdf