An Attempt to Resolve the Quantum Paradox of 720 Degrees Rotation

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Abstract

Postulating a new Planck constant, the Planck circumference, symbol Ⓟ, where its diameter equals the Planck length. Utilizing the Planck circumference as the lynch pin in the schematic of the Planck constants and associated dimensionless constants hierarchy, i.e., The Planck time, Planck length, Planck circumference, half of the reduced Planck constant, reduced Planck constant and the Planck constant. It will be shown that the reduced Planck constant, ħ inherently consists of two Planck circumferences multiplied by their respective ratio (½ħ) / Ⓟ = 1.038499006. Therefore, the two Planck circumferences of 360 degrees constitutes the 720 degrees manifest in quantum calculations. [2]

Planck constants hierarchal schematic:

(Planck constant) $6.626068909 \times 10^{-34}$ h

(reduced Planck constant) $1.054571620 \times 10^{-34}$ $\hbar \mid 2\pi$

(half reduced Planck constant) $5.272858101 \times 10^{-35}$ $(\frac{1}{2}\hbar) \mid 2$

(Planck circumference*) $5.077383865 \times 10^{-35}$ $Ⓟ \mid 1.038499006$

(Planck length) $1.616181480 \times 10^{-35}$ $l_p \mid \pi$

(Planck time) $5.391001132 \times 10^{-44}$ $t_p \mid c$

Note: the speed of light value utilized as the dimensionless ratio of the Planck time and Planck length constants.

π, In the thirty-five hundred years since its discovery, physicists have been unable to give pi a definable function within the context of fundamental equations, albeit ubiquitous. The Planck schematic demonstrates the first π as a ratio in the hierarchal schematic.

First pi equation:

$$\pi = \frac{Ⓟ}{lp}$$

(*New constant, Planck circumference)

Ratio of attribute

$$\frac{(½)\hbar}{℗} = 1.038499006$$

Enumerated constants, via the Planck hierarchal schematic:

Planck momentum

$$MOp = 2\pi\left[\frac{(½)\hbar}{℗}\right] = 6.52508$$

Planck mass

$$mp = \frac{2\pi\left[\frac{(½)\hbar}{℗}\right]}{c} = 2.176532972 \times 10^{-8} \text{ kg}$$

Note: within the 2010 (NIST) CODATA value: $2.17651(13) \times 10^{-8}$ kg

The NIST lists the Planck mass equation (standard model) as: **$mp = (\hbar c/G)^{½}$** [1]

Planck energy

$$Ep = 2\pi\left[\frac{(½)\hbar}{Ⓟ}\right]c = 1.9561 \times 10^{9}$$

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half of reduced Planck constant

$$(½)\hbar = Ⓟ\left[\frac{(½)\hbar}{Ⓟ}\right] = 5.272858101 \times 10^{-35}$$

Reduced Planck constant

$$\hbar = 2Ⓟ\left[\frac{(½)\hbar}{Ⓟ}\right] = 1.054571619 \times 10^{-34}$$

Planck Constant

$$h = 4\pi Ⓟ\left[\frac{(½)\hbar}{Ⓟ}\right] = 6.626068909 \times 10^{-34}$$

Planck Temperature

$$\frac{2\pi\left[\frac{(½)\hbar}{Ⓟ}\right]c}{k} = 1.41684693 \times 10^{32}$$

where: k = 1.38065048 x10^{-23} (Boltzmann constant)

Prediction

The utilization of the Planck sphere with a radius of 8.0809074023775 $x10^{-36}$, in the next tier of quantum study.

Conclusion

The quantum has been breached.

References

[1]. NIST, Fundamental Physical Constants (2006 / 2010 / 2014)

[2]. Quantum Dance, Princeton.edu, Feb. 18, 2009

[3]. Kenneth W. Ford, The Quantum World, Harvard University Press, USA (2004)

[4] John D. Barrow, The Constants, Pantheon Books, USA (2002)