The Hand of God, an Equation, Calculating the Size of the Universe

1.0 Abstract

What is the mathematical basis for the construction of the universe? This paper calculates the size of the universe, which it looks like the speed of light is the limiting factor. It turns out that light takes a curved path, which may be a form of a Golden Ratio spiral.

2.0 Calculations

In the paper, "The Hand of God, Building the Universe, and Multiverse" [4] The outer layer of Planck Spheres of our universe has exactly $s_{10} = 1.86562643 * 10^{81}$ spheres. This value calculation is shown in the appendix. With this number we can calculate the radius of our universe. The equation is shown below. This equation calculates the length of travel, from the center of the universe to the outside of the universe.

$S_{10} = 1.8656264236 * 10^{81}$ Number of Planck Spheres on the outside of the Hubble Sphere Universe

$A = \pi * (1.3195909052 * 10^{-15})^2$ Cross Section of the Planck Sphere, which is the Compton Wavelength of the Neutron squared and multiplied by pi.

$P = \frac{\pi}{12^{.5}} =$ The packing density of a single layer of spheres

$\frac{M_p}{M_n} = 0.99862347871 =$ The mass ratio of the proton to the neutron

$T =$ Travel Distance from the center of the Universe to the outside of the Universe in meters.

$E = (\pi^2 + \pi^2 + 1^2)^{0.5} = 4.554032147688 =$ Expansion ratio of the next increment of a sphere.

$$T = E \frac{3}{\pi} \left[\frac{\frac{M_p}{M_n} S_{10} * A}{P 4\pi} \right]^{0.5} = 13.7462966 billionlightyears$$

The actual radius of the universe would then be

$$\frac{T}{4.554032147688} = 3.01848914417 * 10^9 billionlightyears.$$

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3.0 Discussion

$$\frac{T}{4.554032147688} = 3.01848914417 * 10^{9} billionlightyears.$$

Light would actually bend in some arc, perhaps in some golden ratio spiral. The value of $\frac{\pi}{3}$ in the calculation is not understood. If light follows this arc to the edge of the universe it may also follow an arc from the edge of the universe. The mass of the universe would be the value $S_{10} = 1.86562643 * 10^{81}$ divided by 3 and multiplied by the mass of the proton $1.0401625410^{54} kg$

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Appendix A

If one starts with a point and call this point one, it would in a sense, be a zero-dimensional spot. If this spot were spinning it would have an angular momentum. One finds that the angular momentum in quantum physics to be as follows.

$$|S| = \hbar(s(s+1))^{0.5} \quad [1]$$

If we square both sides of the Equation 1, we end up with

$$s_2 = \frac{|S|^2}{\hbar^2} = s(s+1) \quad [2]$$

If we say that the original value of s is 1, which is our point there is no spin that can be associated with one point since there is no reference to a difference. Therefor spin only makes sense when there are two particles. Note that two particles make a line and thus we have a one dimensional object.

When s=1 then $\frac{|S|^2}{\hbar^2} = 2$ a dimensionless number. If this value of $\frac{|S|^2}{\hbar^2} = 2 = s_2$ and we substitute

$$s_3 = \frac{|S_2|^2}{\hbar^2} = s_2(s_2+1) \quad [3]$$

this new value of s_2 into equation 2 then we obtain a new value of $s_3 = \frac{|S_2|^2}{\hbar^2} = 6$

this value of $s_3 = 6$ could be a 6-sided ring with a particle in the middle for a total of 7 particles and therefore be a unit two-dimensional object.

If we take this equation 2 and substitute the value of $s_3 = 6$

$$s_4 = \frac{|S_3|^2}{\hbar^2} = s_3(s_3+1) \quad [4]$$

this new value of s_3 into equation 2 then we obtain a new value of $s_4 = \frac{|S_3|^2}{\hbar^2} = 42$

this value of $s_4 = 42$ could be a 42-piece exterior to a cuboctahedron packed spheres with a total of 55 spheres or particles and therefore be a unit three-dimensional object.

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At this point it appears that there is, in a sense, a phase change. Instead of continuing to be packed perfectly these points are packed into a spherical structure being constrained by a gravitational field, yet wanting to be packed efficiently as cuboctahedrons.

It was shown in "The Holographic Principle and How can the Particles and Universe be Modeled as a Hollow Sphere"[1] that when packing spheres into a spherical structure that the amount of discontinuities made would be equivalent to the amount of spheres on the outer layer of the sphere. The equation for this.

$$s_d = 4\pi(n+1)n \qquad [5]$$

Which is very close to the equation 1 for the angular spin momentum squared of a quantum particle. This seems unlikely to be a coincidence.

It was found in "The Answer to the Universe, the Life and Everything is Still 42"[2]

That the values of outer layers of the next layers of the construction of the universe is as follows.

$$\frac{4}{3^{0.5}} * N * \frac{1}{\frac{Mp}{Mn} - \frac{Me}{Mn}} = X^2 + X \qquad \textbf{[6]}$$

We can put this equation into the form of Equation 2 where $N = \frac{|S_4|^2}{\hbar^2}$

$$s_5 = [\frac{Mp}{Mn} - \frac{Me}{Mn}]\frac{3^{0.5}}{4} s_4(s_4+1) \qquad \textbf{[7]}$$

The values for $\frac{Mp}{Mn} = 0.99862347844$ and $\frac{Me}{Mn} = 0.00054386734428$ will be used from CODATA. With $\frac{Mp}{Mn} - \frac{Me}{Mn} = 0.998079611096$

$$s_5 = [\frac{Mp}{Mn} - \frac{Me}{Mn}]\frac{3^{0.5}}{4} 42(42+1)$$
$$s_5 = 780.519155281992$$

$$s_6 = [\frac{Mp}{Mn} - \frac{Me}{Mn}]\frac{3^{0.5}}{4}780.519155281992(780.519155281992+1)$$

$$s_6 = 263626.469099857$$

$$s_7 = \frac{3^{0.5}}{4}263626.469099857(263626.469099857+1)$$
$$s_7 = 30036234971.3611$$

$$s_8 = [\frac{Mp}{Mn} - \frac{Me}{Mn}]\frac{3^{0.5}}{4}30036234971.3611(30036234971.3611+1)$$

$$s_8 = 3.899032059425451336441051005747 00*10^{20}$$

$$s_9 = [\frac{Mp}{Mn} - \frac{Me}{Mn}]\frac{3^{0.5}}{4}3.899032059425*10^{20}(3.899032059425*10^{20}+1)$$
$$s_9 = 6.5702127425*10^{40}$$

Note that this level of $s_9 = 6.5702127425*10^{40}$ is the level of the Planck Sphere which is described in the paper "Evidence for Granular Spacetime" [3] The Planck Sphere is the Sphere that if filling our universe, mostly packed in a Cuboctahedron Structure, but is forced into a sphere, by the force of mass and kinetic energy.

The next level is a sphere that has a value that is the amount of Planck Spheres on the outer layer of our Hubble Sphere. This is

$$s_{10} = [\frac{Mp}{Mn} - \frac{Me}{Mn}]\frac{3^{0.5}}{4}6.5702127425*10^{40}(6.5702127425*10^{40}+1)$$

$s_{10} = 1.86562643*10^{81}$ particles for the Hubble Sphere.

The difference between this model of a rotating universe and the big bang universe is that the kinetic energy of expansion verses rotation is different. An expanding universe, from the big bang yields about $1.047*10^{80}$ particles, which comes from the critical density of the universe for a Hubble Sphere sized universe.

References

1) http://vixra.org/pdf/1601.0103v1.pdf
2) http://vixra.org/pdf/1804.0043v1.pdf
3) http://vixra.org/pdf/1601.0234v6.pdf
4) http://vixra.org/pdf/1903.0142v1.pdf