1.0 Abstract

In “The Ultimate Answer to Life, the Universe, and Everything is an Entangled 42”, (1) we found that the smallest realm in the universe was spheres packed in a cuboctahedron of 3 layers. In the first realm of the cuboctahedron there was a perfect 42 spheres on the outside of 3 layer cuboctahedron. In each subsequent layer the packing of spheres formed a larger sphere. But, the final layer of spheres the average number was not a whole integer. I suspect that in actuality each sphere does have integer number of spheres, but adjacent spheres have a slightly number of spheres. This slightly different number gives us a slightly different constant of nature, ever so small and different, but enough to contribute to a lumpy universe.

In “The Holographic Principle and How can the Particles and Universe be Modeled as a Hollow Sphere”(2). We found that the amount of discontinuities, or imperfections, when packing spheres around a group of spheres in equal to 4pir^2+4pir. This is basically the outside of the sphere contains the amount of information a universe can carry. The discontinuities or imperfections formed when packing spheres around a sphere, however small a percentage this may be contributes to the lumpy universe.

Our Realm of the universe would have a difference in particle size of about one in over ten to the 40^{th} power.

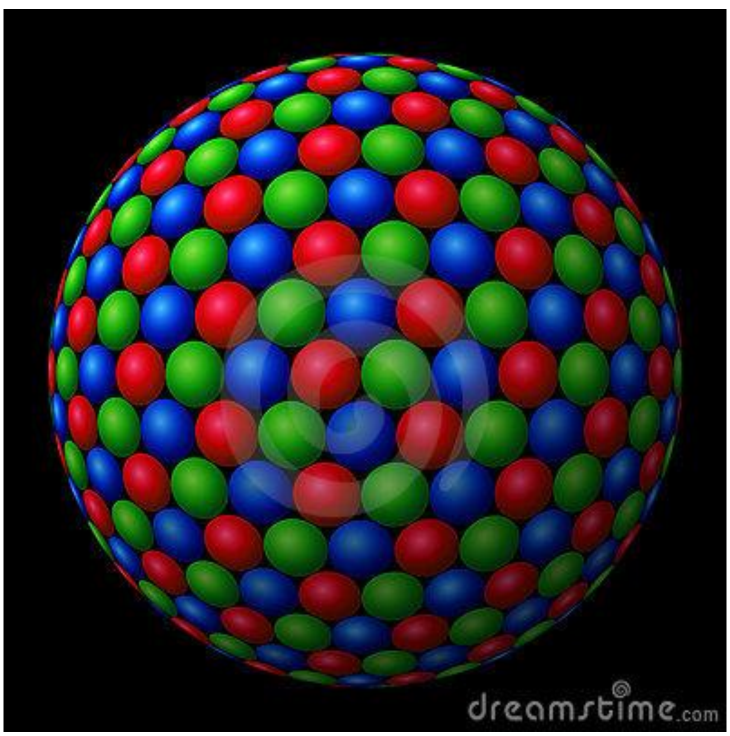
In addition

What is the Ultimate Answer to Life the Universe and Everything? According to the “Hitchhiker’s Guide to the Galaxy” an advanced race of beings invented a supercomputer called Deep Thought, which after 7.5 million years came up with the answer of 42.

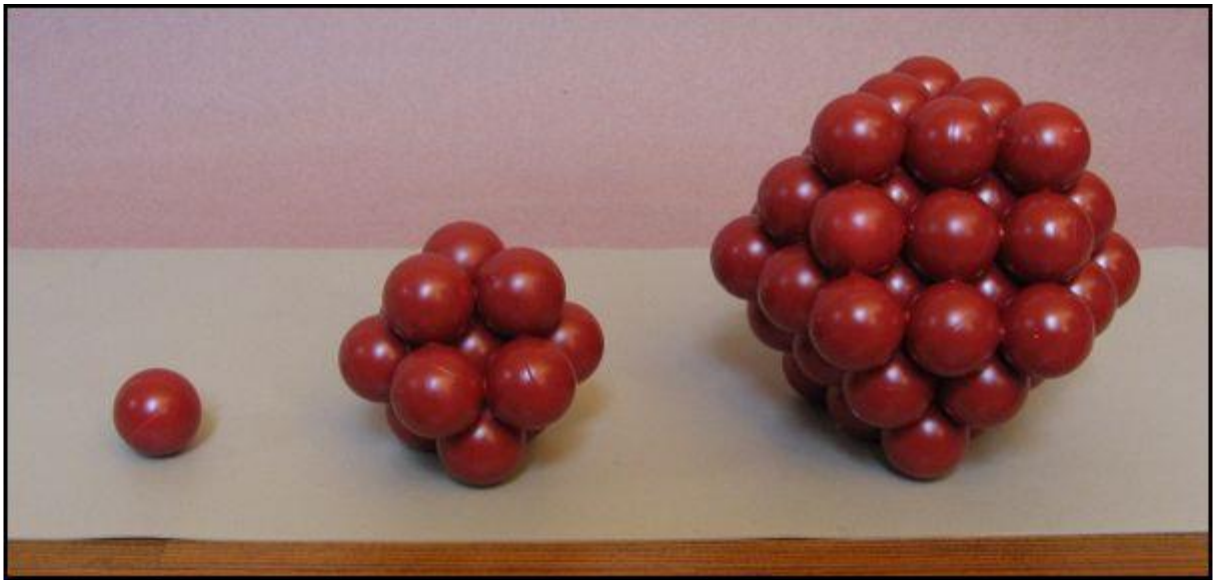
The real answer, to this question, could very well be related to 42. Sphere Theory is a theory where the universe is made of spheres, which are made of spheres etc. It is also a theory where perfection and imperfection are in competition, where perfect packing is cuboctahedron packing and imperfect packing is spheres packed around spheres. This imperfect packing always results in the imperfect amount of packing is nearly equal to the outer layer of spheres, which is likely related to the holographic principle. This paper shows that this spherical structure of nature is followed until the structure becomes a cuboctahedron with an outer layer of 42 spheres. The Hubble Sphere was found to have a surface area 1.0471*10^80 Planck spheres. The Planck Spheres were found to have a surface area of 6.57920 *10^40 Kaluza spheres. This paper works to help explain where these quantities come from.

2.0 Calculations

It was found in "Evidence for Granular Spacetime"(3) that the amount of Kaluza Spheres on the outer layer of the Planck Sphere is 6.57920*10^40 and in "New Evidence for the Eddington Number, and the Large Number Hypothesis, and the Number of Particles in the Universe"(4), that the amount of Planck Spheres on the surface of the Hubble Sphere is 1.0471*10^80. See image below for sphere made of sphere.



Please see the image below for a sphere, first layer cuboctahedron, and second layer cuboctahedron made of spheres.



(5) Sphere First layer cuboctahedron Second layer cuboctahedron

Formula for calculating the quantity of spheres on the surface layer of cuboctahedron surface.

$N = 10 * L^2 + 2$ where L is the layer number. [1]

In this paper we use a Gravitational constant of $6.67401 * 10^{-11} \frac{m^3}{kgs^2}$ instead of the CODATA value of $6.67408 * 10^{-11} \frac{m^3}{kgs^2}$ which yields a slightly altered number of N shown in Equation 2.1, below. This ends up being a prediction of the Gravitational Constant of $6.67401 * 10^{-11} \frac{m^3}{kgs^2}$.

Equation 2.1 $N = \frac{2\pi^3 hc}{GMn^2}$ = $6.57927 * 10^{40}$ (3) outer layer components of the Planck Sphere

$$M = particlesofthediscontinuitiesoftheHubbleSphereUniverse = \frac{3h^2c^2\pi^3}{G^2Mn^4} = 1.0471\times10^{80}.$$

In Sphere Theory, Planck Spheres, make up the universe, attracted gravitationally to form one giant, Hubble Sphere. Kaluza Spheres are packed with a deeper force to form one sphere, which is what this author calls the Planck Sphere. Kaluza spheres end up having Planck sized dimensions. This paper is about determining the relation between the quantities of spheres for each layer.

In “How can the Particles and Universe be Modeled as a Hollow Sphere”(2) it was show that the amount of discontinuities in packing for a sphere packed with spheres would be as shown in Equation 1b as follows.

$$Sd = 4pi(x^2 + x) \qquad [2]$$

It is proposed here that the equation for finding the outer surface layer of each sphere made of sphere is as follows. Where Mp= proton mass, Mn=neutron mass, and Me=electron mass, G=gravitational constant, h=Planck’s constant, and c=speed of light in a vacuum.

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

except for the Planck Sphere layer, which is as follows

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

Note that the values of $\frac{Mp}{Mn}$ and $\frac{Me}{Mn}$ are already squares of the Beta calculations as shown in (6)&(7) for the calculation of the mass ratios of the proton to the neutron and the electron and the neutron respectively. These look very similar to orbital like calculations for the electron around the nucleus.

The calculations are shown below for finding the quantity of spheres on the 2-layer, Cuboctahedron of the Spacetime construction.

$$(0.998623478\frac{4}{3^{0.5}}6.57927*10^{40}\frac{1}{0.99807961}=X^2+X \quad [5]$$

$Layer5 = 389903228337536073310$ spheres

$$(\frac{4}{3^{0.5}}*389903228337536073310\frac{1}{0.99807961}=X^2+X \quad [6]$$

$Layer4 = 3.0036235850449\times10^{10}$ spheres

$$(\frac{4}{3^{0.5}}3.0036235850449\times10^{10}\frac{1}{0.99807961}=X^2+X \quad [7]$$

$Layer3 = 263626.4731024$ spheres

$$(\frac{4}{3^{0.5}}*263626.4731024\frac{1}{0.99807961}=X^2+X \quad [8]$$

$Layer2 = 780.519161640$ spheres

$$(\frac{4}{3^{0.5}}*780.519161640\frac{1}{0.99807961}=X^2+X \quad [9]$$

$Layer1 = 42.000000196$ spheres

Where X=42 exactly with a tiny adjustment to the value of the gravitational constant.

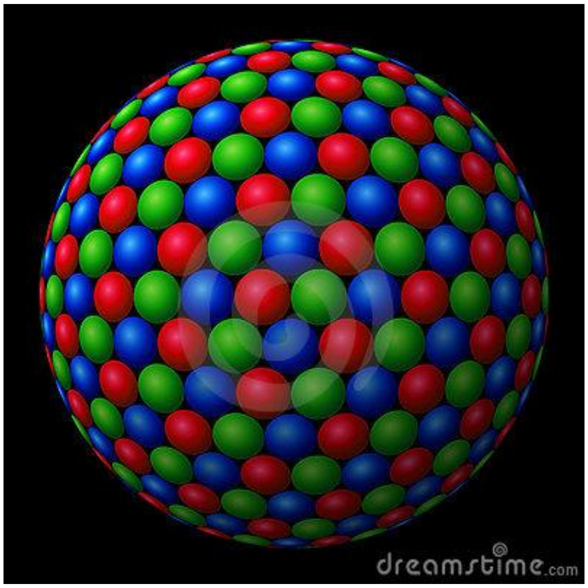
3.0 Discontinuities in the universe

Sabine Hossenfelder states, “The Holographic Principle requires that the number of different states inside a volume is bounded by the surface of the volume. That sounds like a rather innocuous and academic constraint, but once you start thinking about it it’s totally mindboggling.”(6)This theory proposes a theory of why the Universe and particles can be modeled as a hollow spheres but still not be a hollow sphere, but rather a sphere with very few discontinuities in relation to the spheres overall size. It also proposes why a diameter can be different when calculation a charge radius or energy radius or mass radius and why the spheres in this theory must be rotating. Further, it paints a picture of the structure of the levels of the Universe and its properties. It gives a mechanism of why the Holographic Principle is true.

I. Calculations

This theory begins with the assumption that the Universe is a spinning sphere made of spinning spheres. Also the neutron, proton, electron, light etc are spinning spheres made of spinning spheres. Indeed, the spinning spheres never change location, but rather the change in the spin is what is translated from place to place. In the case of matter, the change in spin is translated, as well as the discontinuity is translated from one place to another.The easiest way to pack spheres, in an efficient method is to pack in a cuboctahedron structure. However, with gravity, there is a tiny force that causes each sphere to a center and thus results in a thin spherical layers of packing. The problem with thin spherical shell packing is that each next larger thin spherical shell has more spheres than the interior sphere. For example, a sphere as shown below, looks like it has a radius of about four smaller spheres. This would yield an outer surface of 64*pi spheres. The next layer would have a radius of 5 resulting in 100 pi spheres. This creates some discontinuity in the packing. When starting from the first few layers, the concentration of discontinuities is high. As one works out to a very large radius, the percentage of discontinuities drops dramatically. How does one add up the discontinuities? After the image this is explained easily.

Our Lumpy Universe



Further imagine attempting to place another layer of spheres around this sphere. Initially, the inner spheres have a high percentage of discontinuities, but when one gets to the billionith, billionith, billionith layer, the percentage of discontinuities get very small. How does one figure out the amount of discontinuities? A simple integration can solve this problem! Each layer has $4*\pi*x^2$. So if we use the Equation 3, below, we can find out the total amount of discontinuities. Discontinuities between layers would be

Equation 1 $Discontinuitiesbetweenadjacentlayers = 4pi*(x+1)^2 - 4pi*x^2$ from 0 to x

Or

Equation 2 $Discontinuitiesbetweenadjacentlayers = 4pi*x^2 - 4pi*(x-1)^2$ from 1 to x

Integrate Equation 1 from 0 to x
Or
Integrate Equation 2 from 1 to x

Let Sd= Sum of Discontinuities between adjacent layers of concentrically packed sphere made of spheres

Integrating Equation 1

Equation 1 $Discontinuitiesbetweenadjacentlayers = 4pi*(x+1)^2 - 4pi*x^2$ from 0 to x

Equation 1a $Sd = \int_0^x 4pi*(x+1)^2 - 4pi*x^2 dx$.

Therefore

Equation 1b $Sd = 4pi(x^2 + x)$

Integrating Equation 2

Equation 2 $Discontinuitiesbetweenadjacentlayers = 4pi*x^2 - 4pi*(x-1)^2$ from 1 to x

Equation 2a $Sd = \int_1^x 4pi*x^2 - 4pi*(x-1)^2 - dx$.

Therefore

Equation 2b $Sd = 4pi(x^2 - x)$

Please note that, as x becomes very large, only x^2 dwarfs x or -x

And then the equation becomes

Equation 3 $Sd = 4pi(x^2)$

Note that equation 3 is the equation for the outer surface area of a sphere and note that all the discontinuities of packing sphere upon sphere in a spherical fashion, all adds up to the surface area of the outer layer of spheres, even though all the discontinuities are distributed throughout the sphere.

Now lets say that the sphere is spinning. The velocity of all points within the sphere is some fraction of the radius of the larger sphere. Therefore, if one were to add up the momentum, charge, energy, and acceleration of the sphere as a whole the sphere could look different depending on what one was measuring. One could have a momentum radius, a charge radius, an energy radius, and an acceleration radius.

It can be shown that the momentum radius, charge radius, and acceleration radius is 2/3 of actual radius, and the energy radius is ½ of the actual radius.

4.0 Discussion

So we see from calculating to the first unit to the construction of our universe, that it is a cuboctahedrally packing of spheres. The next layer has 780.519161640 spheres on the outside. Since spheres come in whole numbers, there would need to be some spheres with 780 spheres packed on the outside and some with 781 or perhaps 782. It would be impossible to measure at this part of the universe. Regardless, if the fundamental constants of nature were dependent on the number of spheres on the outside of the structure. We would get slightly altered constants and forces that would then help lead to a lumpy universe. This happens at every realm or hidden dimension, that we have slightly different numbers in sphere, and thus slightly different constants of nature. In our layer of the universe, where the Planck Sphere is made up of approximately 6.57927*10^40 particles we would have a lumpy factor of different sized spheres of one part in 6.57927*10^40. It would appear very smooth. Too smooth to measure perhaps.

When we look at the packing of spheres around spheres, we already, by definition, start with discontinuities or imperfections in the packing. This is seen is regular material science, with crystals, to cause many crystals to form within a material from many points, perhaps in the way we see galaxies forming throughout the universe.

4.0 References

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