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The Void and the Multiverse

Ardeshir Irani

The Dark Energy Research Institute, Downey, CA, USA
Email: artirani@aol.com

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Abstract

The Void is different from the vacuum space of our Universe because it has "nothing" in it, no space, no time, no mass, and no charge. It only has Pure Energy. The only particles that have no space, no time, no mass, and no charge are photons and hence the Void is filled with photons of different Energy levels separated from one another by quantum numbers n. The Energy from within the Void is the source of all creation and annihilation. Each Universe of the Multiverse is created in parts that are joined together by gravity. Dark (Photon) Energy creates one part of the first dimension, two parts of the second dimension, three parts of the third dimension, four parts of the fourth dimension and so on, parts that are brought together to complete the formation of that dimensional Universe by means of a Big Bang; just as the Big Bang brought 3, 3-D parts created by 3, 2-D Universes together to form our 3-D Universe.

Keywords

The Void, The Multiverse, Pure Energy, Gravity

1. The Void

The Void consists of distinct levels of concentrated Energy. It is filled with photons of different Energy levels given by $E_n = (n+1)hf_n$, which is the energy per photon, where n is the quantum number ranging from 0 to a final n that would be determined either by the total Energy content within the different levels of the Void or by the non-equilibrium of the final nth level of the Void [1]. Since each higher level has been compacted its wavelength is shorter and hence its frequency f_n is larger. Therefore, frequency values vary from radio frequency for $n = 0$ to gamma ray frequency for the final n with the intermediate values of n having frequencies between these two extreme values. This implies that the thermal energy per photon would become greater going from level $n = 0$ to the final n. In

the higher levels the photons are more compacted than in the lower levels. Just as mass is congealed energy in our Universe, so too the photon energy is more congealed in the higher levels of the Void. An analogy would be that the photons in the lower levels are as if they are in a gaseous state, in the middle levels as if they are in a liquid state, and in the higher levels as if they are in a solid state. Just as a little bit of mass can create a lot of energy in our physical Universe according to $E = mc^2$, so too compacting the photons in the higher levels of the Void can increase their energy content by a large amount as in the case of a Laser beam compared to a light bulb because the light that the Laser beam emits is coherent while the light emitted by a light bulb is incoherent. Compacting the photons its energy becomes coherent increasing as N^2 while for incoherent radiation its energy increases as N [2] where N represents the total number of photons in each quantum level. The two extreme cases have energy in them equal to $N(n+1)hf_n$ for $n = 0$ and $N^2(n+1)hf_n$ for the final n level with the other levels in between taking on intermediate values. Each individual level is in thermal equilibrium with itself. The reason the different levels within the Void do not interact with one another is because for thermal energy to flow from a higher level to a lower level requires matter for conduction and convection and space for radiation along with time in all three cases. Since matter, space, and time do not exist within the Void the flow of thermal energy cannot exist keeping the different Energy levels of the photons distinct; whilst mixing them all together in the final nth level would lead to the thermal non-equilibrium of the system. Using $n = 10$ for the final n from String Theory the energy in the different levels can be written as:

$$E_n = N\left\{n^2 N/81 + (9-n)/9\right\}(n+1)hf_n$$

where n goes from 0 to 9.

The total energy that is deposited in level $n = 10$ to create antimatter is given by:

$$E_T = N\sum_{n=0}^{9}\left\{n^2 N/81 + (9-n)/9\right\}(n+1)hf_n$$

Since time does not exist within the Void, the meaning of the existence of a beginning and an ending for the Photon Energy (previously referred to in Reference 1 as Dark Energy) within the Void does not exist. Photon (Dark) Energy can create matter starting from the $n = 0$ level with time moving in the forward direction for the creation of the Multiverse, and it can also create antimatter with time moving in the backward direction starting with the photon Energy from the highest nth level for the reverse effect to take place, sending all the antimatter and its associated space into the original levels of the Void as photons; thereby restoring the stable equilibrium of the system.

Creation of Universes from "nothing" has been a widely spread idea since 1970 but without proper understanding of what "nothing" really means. While "nothing" can mean no space, no time, no charge, and no mass; it cannot mean

no Energy because that would go against the Conservation of Energy Principle, the fundamental Law of Physics; and because Energy can create space, time, mass, and charge. This implies that the creation of Universes from "nothing" takes place because the Laws of Physics are deeply embedded within the Energy of photons in different quantum levels of the Void.

2. The Multiverse

Since the Multiverse is created simultaneously from the Void starting with n! zero-dimensional point singularities, where n here refers to the final n, all the different Universes within the Multiverse would currently have three spatial dimensions and their dimensions will continue to grow with time simultaneously. The number of 3-D Universes that currently exist would depend on the final nth dimension within the Void. For $n = 10$ (according to String Theory) our Universe would be one out of 10!/3! = 604,800 of all the 3-D Universes currently in [1].

The formation of higher Dimensional Universes takes place in parts:

2, 1-D Universes create 2, 2-D Parts that come together to complete the 2nd Dimensional Universe.

By iteration,

3, 2-D Universes create 3, 3-D Parts that come together to complete the 3rd Dimensional Universe.

4, 3-D Universes create 4, 4-D Parts that come together to complete the 4th Dimensional Universe.

n, (n − 1)-D Universes create n, n-D Parts that come together to complete the nth Dimensional Universe.

Another way of saying the same thing is that each first dimensional Universe creates one-half of the second dimension, and it takes two, one-half second dimensional parts coming together to complete a second dimensional Universe. Each second dimensional Universe creates one-third of the third dimension, and it takes three, one-third dimensional parts coming together to complete a third dimensional Universe. Each third dimensional Universe creates one-fourth of the fourth dimension, and it takes four, one-fourth dimensional parts coming together to complete a fourth dimensional Universe. Each $(n-1)^{th}$ dimensional Universe creates one-nth of the nth dimension and it takes n, one-nth dimensional parts coming together to complete a nth dimensional Universe.

Let us analyze the situation starting with n = 10 for n! = 10! = 3,628,800 zero-dimensional point singularities which will create 3,628,800 of 1-D Universes since each point singularity creates one 1-D Universe. 3,628,800/2 parts = 1,814,400 of 2-D Universes; 1,814,400/3 parts = 604,800 of 3-D Universes; 604,800/4 parts = 151,200 of 4-D Universes; 151,200/5 parts = 30,240 of 5-D Universes; 30,240/6 parts = 5040 of 6-D Universes; 5040/7 parts = 720 of 7-D Universes; 720/8 parts = 90 of 8-D Universes; 90/9 parts = 10 of 9-D Universes; 10/10 parts = 1 of 10-D Universe.

The parts of each dimension are brought together by gravity to complete the formation of that dimensional Universe. The force that brings them together in our situation is the external gravitational force of the 4-D part of our Universe along with the external gravitational force of the 4-D parts of the other three Universes in our subgroup of four since four 4-D parts of which we are one part would complete the fourth dimension, which is currently in the process of being built. Dark Matter is matter that is being sent from our 3-D Universe into the 4-D part of our Universe. When all the matter from our 3-D universe becomes Dark Matter then the 4-D part of our Universe will be completed. The same process is being repeated for the other 4-D parts of the Multiverse both inside and outside of our subgroup. All matter (called Dark Matter) from each lower dimension is being sent into the next higher dimension through Black Holes of the lower dimension. This completes the lower dimension and the combined parts of the higher dimension form that higher dimensional Universe. Our 3-D Universe becomes bereft of matter as all the Dark Matter is sent into the 4-D part our 3-D Universe, and once the 4, 4-D parts combine to form one 4-D Universe, the 4-D Universe would become one out of 151,200 of 4-D Universes. This means that we play only a very small part in the creation of all the 4-D Universes, and even a smaller part in the creation of the 10-D Universe.

Our knowledge has changed so much in the short period of 2500 years since the time of Plato and Aristotle from our earlier belief that the earth was at the center of the Universe, and within the past 300 years from Newton to Einstein that our Universe was static which prompted Einstein to introduce Lambda into his field equations. The correct calculation would have been to introduce rotation instead of Lambda in his field equations because the centrifugal outward force would cancel the inward gravitational force, and so now we know that our 3-D Universe is accelerating in the outward direction through data of supernovae explosion observations [3]. This implies that the centrifugal rotational outward force is stronger than the gravitational inward force.

Time is one dimensional, moving only in one direction, so that when it reverses direction time will reverse all the effects that were originally created by it.

Have you ever wondered why there exists more vacuum space in our 3-D Universe than there exists matter? It is because the reaction force while creating matter will create much more of the lesser dense vacuum space. This implies that vacuum space has energy in it which is a quantum phenomenon implying that the energy density of vacuum depends on the dimensionality of space, otherwise the vacuum space created by the reaction force that creates matter would become infinitely large. Hence vacuum space has the properties of a thin, transparent, elastic medium which can be stretched by the centrifugal force, can be bent by massive stars, and can be pierced by Black Holes which sends Dark Matter of our 3-D Universe into the 4^{th} dimensional part of our Universe.

Since Dark Energy exists in the void in different energy levels, each higher dimension n is created by Dark Energy from the point singularities of the vacuum space of the preceding lower dimensional void $(n-1)$ and the rotation of

dimension n is set up by Dark Energy from the point singularities of level n sent through the vacuum spaces of the nth dimension. If there does not exist any Dark Energy in the final level n to rotate the nth dimensional Universe that is being formed, to create the next higher dimension, then the process will end since without an outward rotational force the inward gravitational force of the nth dimensional Universe will make it collapse into the void of level n. Then time reversal for antimatter created from the energy within the final nth level will reverse the process of creation by sending all the Dark Energy back into their original levels of the Void.

3. Conclusion

Dark Energy is another name for Pure Energy within the Void in the form of photons. This Energy can exist within the Void in different Photon Energy levels of quantum numbers n because space, mass, time, and charge do not exist for photons; and because the Laws of Physics are embedded within the Void to be able to create matter Universes from the $n = 0$ level of the Void and antimatter Universes from the final level n of the Void. Hence the source of all creation and annihilation exists within the Void in the form of Pure Photon Energy that creates the Universes of the Multiverse in parts depending on the dimension being created, parts that are brought together by gravity to complete that Dimensional Universe; and then the reversal of time by the formation of antimatter reverses the process to send all the Dark Energy back into their respective levels of the Void.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

[1] Irani, A. (2021) Dark Energy, Dark Matter, and the Multiverse. *Journal of High Energy Physics, Gravitation and Cosmology*, **7**, 172-190. https://doi.org/10.4236/jhepgc.2021.71009

[2] Irani, A. (1979) BNL-26690, Synchrotron Radiation from a Helical Wiggler. Brookhaven National Laboratory, Upton, New York. https://doi.org/10.2172/6012399

[3] Cheng, T.-P. (2015) A College Course on Relativity and Cosmology. Oxford Scholarship Online, 224, 225. https://doi.org/10.1093/acprof:oso/9780199693405.001.0001