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Inter-Dimensional Review

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ABSTRACT

An Inter-Dimensional gateway is the portal that connects one zone of the multiverse to another. Particle Accelerator is one of major apparatus that may be used to open gate way to multiverse. Particle accelerator accelerates elementary particles like electrons, protons, neutrons to very high energies. It generates charged particles that may be used for Inter-dimensional gateways. It's just one component in the dimensional theory as gravity also plays a major role.

KEYWORDS: **Inter-dimension portal, portal, gateway, particle accelerator**

1. INTRODUCTION

Inter-dimensional gateway is involved in visitations from other dimensions or realities that coexists distinctly alongside our own. It is not necessarily a substitute to the extraterrestrial,since two of them are mutually exclusive. Hence both can be true simultaneously. [1]

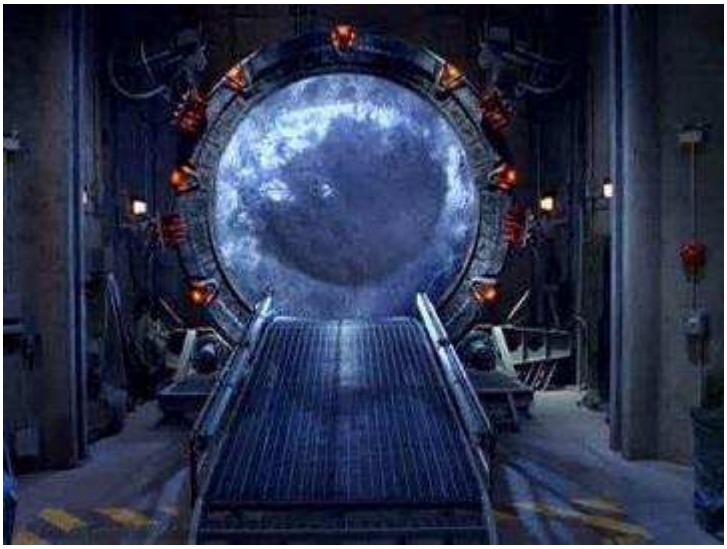

Fig. 1. Illustrates PossibleInter-Dimensional Portal to multiverse most likely using particle accelerator. [2]

II. Multiverse

Parallel universe is a self-contained plane of existence, co-existing with one's own. The sum of all potential parallel universes that create reality is often called a "Multiverse" A parallel universe – or more specifically, continued interaction between parallel universe and our own. Most common use of the concept of a parallel universe is the concept of hyperspace. "Hyperspace" often refers to a parallel universe that can be used as a faster than light technology. Rationales for this hyperspace vary, but two common elements are: It is possible to enter and exit from this hyperspace with reasonable ease; There is a reason to enter the hyperspace and exit rather than conventional travel. [3].

Fig. 2. Illustrates the concept of multiverse [4]

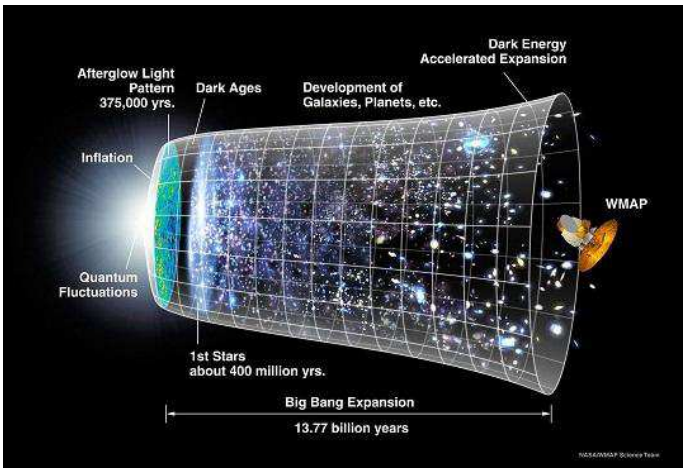

Fig. 3. Illustrates evolution of the universe over 13.77 billion years. The far left depicts the earliest moment that can be probed, when a period of "inflation" produced a burst of exponential growth in the universe. [5]

III. Multiverse Theory

Multiverse is based on the Standard Model of particle physics, it's the accepted model of fundamental matter and forces that exist in the universe. We already know that matter particles (including electrons and protons) and the forces that they interact with.

However, there is one discrepancy with the Standard Model is that; we know that particles have mass – but we couldn't figure out how that mass was gained. When scientist observed the Higgs boson in 2012, when experiments at the Large Hadron Collider, the last piece of the Standard Model puzzle slid into the place: the Higgs field, comprising a soup of Higgs bosons, that allows particle to gain mass.

Disadvantages of Standard Model is that; it doesn't answer the question that how gravity works within the Standard Model and how other three fundamental forces can be united into one. Another question is that the universe is largely made up of dark matter and energy; Scientists were never able to observe what "other" matter is. The third question is that in the Higgs Boson experiments in Large Hadron Collider, observation made was mass was quite light.

In Large Hadron Collider, when protons collide, a small-scale Bang occurs that reproduces the conditions right after the universe began. That's where the multiverse comes in. It's another extension of the Standard Model that tries to explain questions. [6]

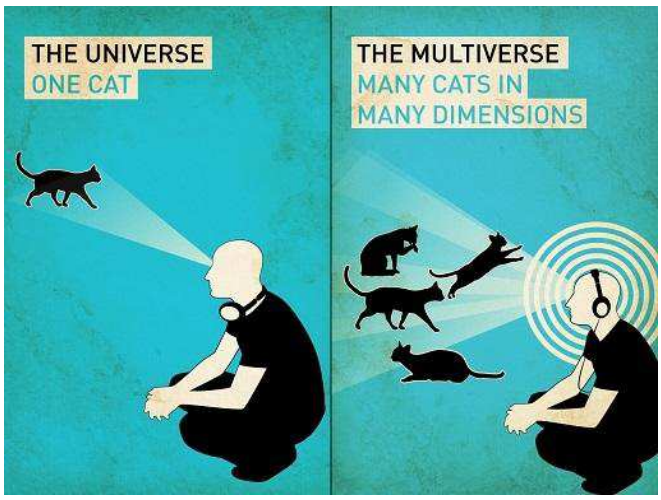

Fig. 4. Illustrates cat in one Universe and many cats in multiverse in many dimensions [7]

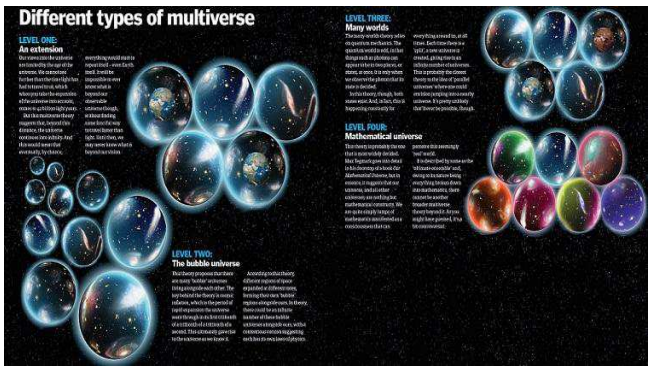

Fig. 5. Illustrates various types of multiverse [8]

IV. Hausdorff Equations for Inter-dimensional Hypothesis

Hausdorff dimension is the measure of fractal dimension that was first formulated by Felix Hausdorff. An example Hausdorff dimension of a single point is zero, of a line segment is 1 of a square is 2 and of a cube is 3. That is, for sets of points that define a smooth shape or a shape that has a small corners – the shapes of traditional geometry and science – the Hausdorff dimension is an integer with the usual sense of dimension also known as topological dimension.

Hausdorff dimension simplifies the notion of the dimension of a real vector space. For instance, Hausdorff dimension of an n-dimensional inner product space equals n. This underlines earlier statement that the Hausdorff dimension of a point is zero, of a line is one, etc., and that irregular sets can have non integer Hausdorff dimensions. Hausdorffdimension is aninheritor to the simpler, but usually alike, box-counting or Minkowski-Bouligand dimension.

Hausdorff content

Let be a metric space. If S and d [0,], the d-dimension unlimited Hausdorff content of S is defined by

$C_H^d(S) := \inf \{ \sum_i r_i^d : \text{there is a cover of } S \text{ by balls with radii } r_i > 0 \}$

In alternative method, $C_H^d(S)$ is the infimum of the set of numbers $\delta \geq 0$ such that there is indexed collection of balls $\{(Bx_i, r_i) : i \in I\}$ covering S with $r_i > 0$ for each $i \in I$ that satisfies $\sum_{i \in I} r_i^d < \delta$ (Standard convention that $\inf \phi = \infty$)

Hausdorff measure

Hausdorff outer measure is different from the unbounded Hausdorff content rather than considering all possible covering of S when the sizes of the balls go to zero. For , we define the d-dimensional; Hausdorff outer measure of S as

$$H^d(S) := \lim_{r \to 0} inf \{ \sum_i r_i^d$$

$$: \text{there is a cover of } S \text{ by balls with radii } 0 < r_i < r\}$$

Hausdorff dimension

Hausdorff dimension of X is defined as the infimum of the set of such that the d-dimension Hausdorff measure of X is zero. This is the identical as the supremum of the set of such that the d-dimension Hausdorff measure of X is infinite (except that when this latter set of numbers d is empty the Hausdorff dimension is zero) [9]

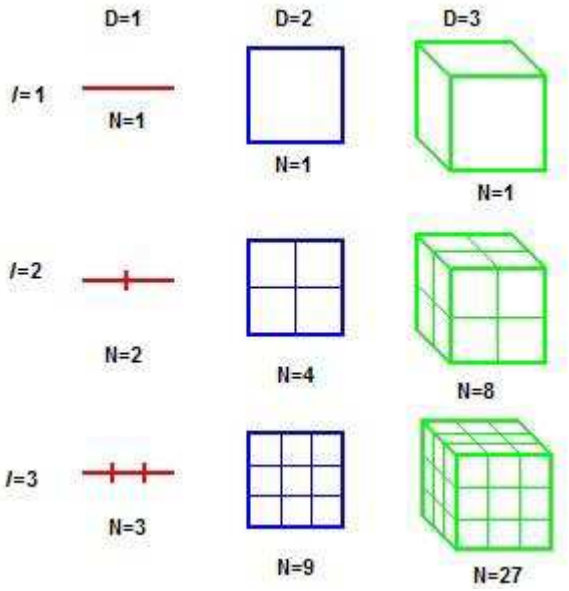

Fig. 6. Illustrates Traditional notions of geometry for defining scaling and dimension. [10]
1, 12=1, 13=1
2, 22=4, 23=8
3, 32=9, 33=27

V. Particle Accelerator

A Particle Accelerator is an apparatus that utilizes electromagnetic fields to thrust charged particles to very high speeds and energies and to contain them in well-defined beams.

Large accelerators are used for research in particle physics. Particle accelerator which can accelerate two beams of protons to an energy of 6.5 TeV and cause to collide head on, creating center-of-mass energies of 13 TeV. Because the target of the particle beams of early accelerators were usually the atoms of a piece of matter, with the goal being create collisions with their nuclei to investigate nuclear structure, accelerators were commonly stated as Atom Smashers. [11]

Fig. 7. Illustrates a real time Particle Accelerator. [12]

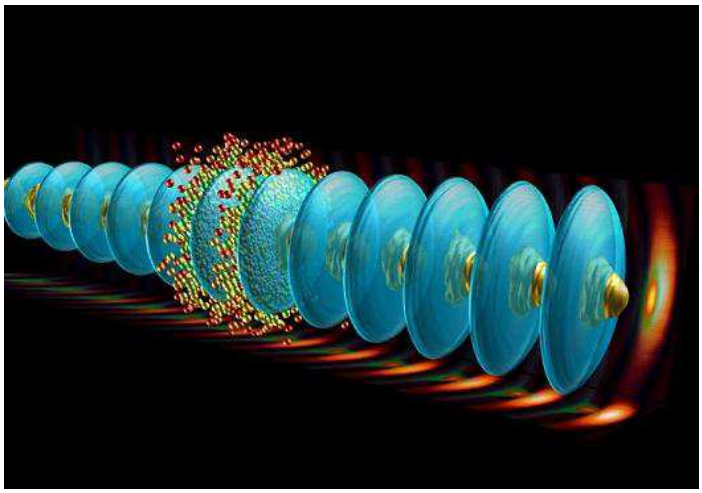

Fig. 8. Illustrates Surfing in the particle accelerator: In the AWAKE experiment, the protons (bullet-like structures) drive a plasma wave (elipsoidal structures) that accelerates electrons to high energies (small spheres). [13]

VI. Inter-dimensional gateway analysis

In a particle accelerator, smashing atomic nuclei head-on at the speed of light can briefly create new high-energy and highly un-stable particles, which quickly decay into a shower of detectable lower energy ones. Characteristic patters of decay serve as fingerprints of fleeting exotic and the shape of unseen dimensions. [14]

VII. Author Notes

Although, it seems very convenient to have multiverse. Inter Dimensional also has disadvantages – for instance a person in real time universe is morally good and ethical. But it's not necessary that same person from different dimension be same, although having same DNA.

VIII. Conclusion

In this review article demonstrates:

- Multiverse phenomenon is reviewed
- Use of Hausdorff equations for Hausdorff measure, Hausdorff content and Hausdorff dimension in dimension gateways.
- Inter-dimension gateways may be possible using particle accelerators.

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