The Fundamental Universe: Prespace, Line Space, Strings And Branes Properties

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ABSTRACT

This is a conceptual model of the fundamental properties of the Universe. This model offers a new viewpoint conceptually on the fundamental properties of Spacetime, Strings and Branes. Taking this conception through Pre-Big Bang and Post-Big Bang Cosmology. A form of inflation and positive cosmological constant naturally flows from this model.

INTRODUCTION

Describing the universe on a fundamental scale is left to strings, branes, and Quantum Mechanics for the most part. Where General Relativity describes the larger parts of the universe. This leaves open the question of what are strings and branes made. And how does General Relativity fit into the Quantum Mechanical sector. These are perplexing questions that beg for a conceptual framwork to start the process of building an all encompassing mathematical structure, (In other words a Grand Unified Theory (GUT) or Theory Of Everything (TOE)). A sturcture that will encompass not only General Relativity and Quantum Mechanics but M-theory with its strings and branes concept. As is now inflation and the positive cosmological constant are introduced ad hoc, and inflation is not part of the normal parts of elementary particles and fundamental interactions such as within superstring theory. And the realization of an inflationary phase in a string theory context is problematic, in fact. This model hopes to show a smooth transition between the Pre-Big Bang and Post-Big Bang Cosmology that shows a way inflation and acceleration of the universe may come naturally and may be aspects of the same concept. Acceleration of the universe is presumed to be due to dark energy as a cosmological constant or vacuum energy; agreeing with the Lambda-CDM model, (generally known as the Standard Model of Cosmology) which is in good agreement with recent observations. This model also hopes to show that the acceleration can be accounted for by the structure outlined within this conceptual model.

THE FUNDAMENTALS OF NOTHINGNESS

At the core of the onion in this conceptual model is prespace, which is the space that is here before our universe. It takes a whole lot of something to produce nothing it turns out. It is assumed that nothing can only be a point. Then in order for there to be nothing outside of this point there needs to be another point and so on. So even nothing must be filled with points of something which in this model is called Placement Particles, they hold a place in the nothingness. These nothing points (Placement Particles) have to be complex enough to form our universe. Even though they are just points of nothing, they have in some way a very complex structure. These Placement Particles can form lines, planes and volumes to form 0,1,2,3 dimensional objects. They may form or transmit waves as well.

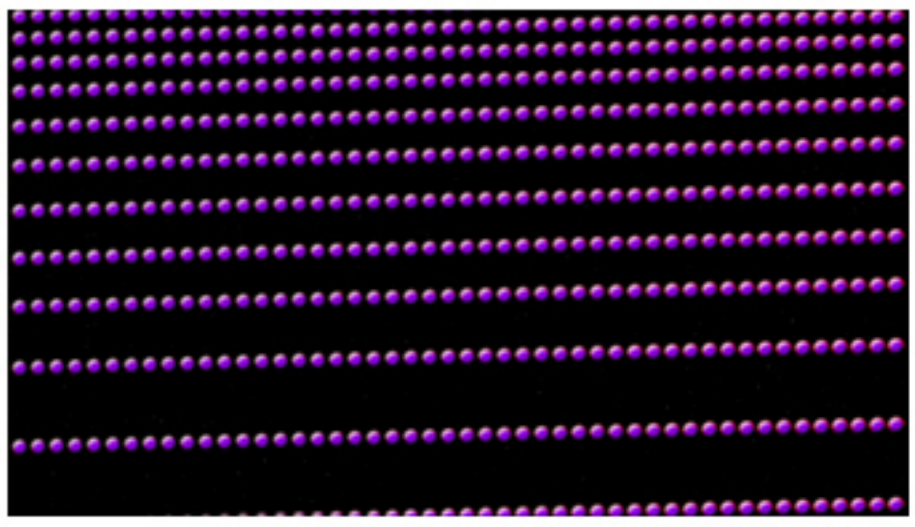


Fig. 1

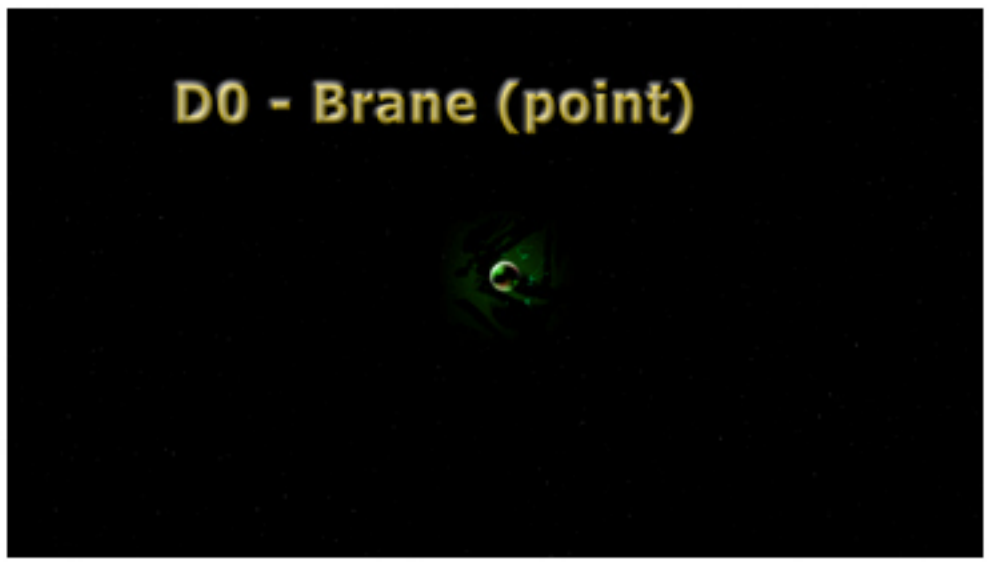
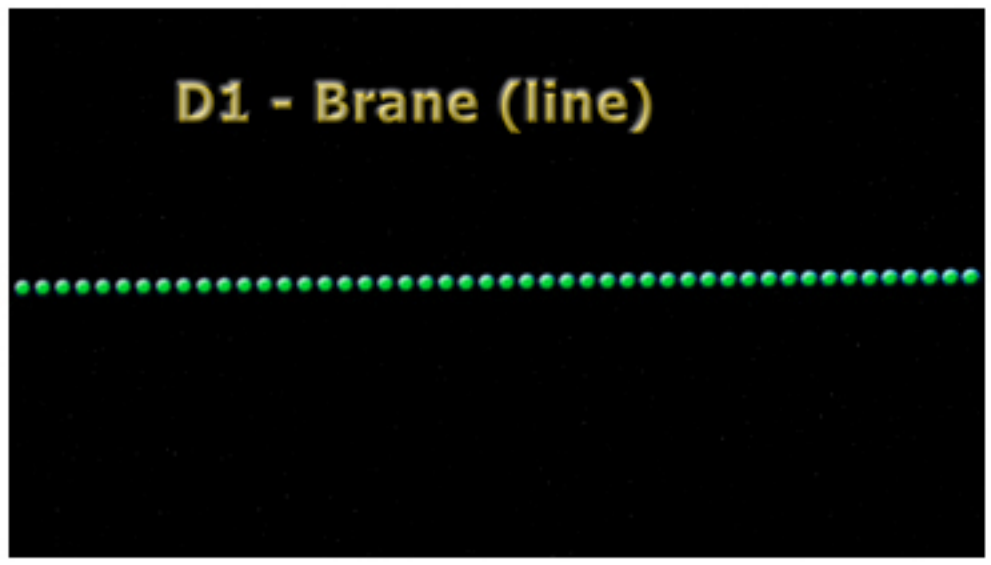


Fig. 2



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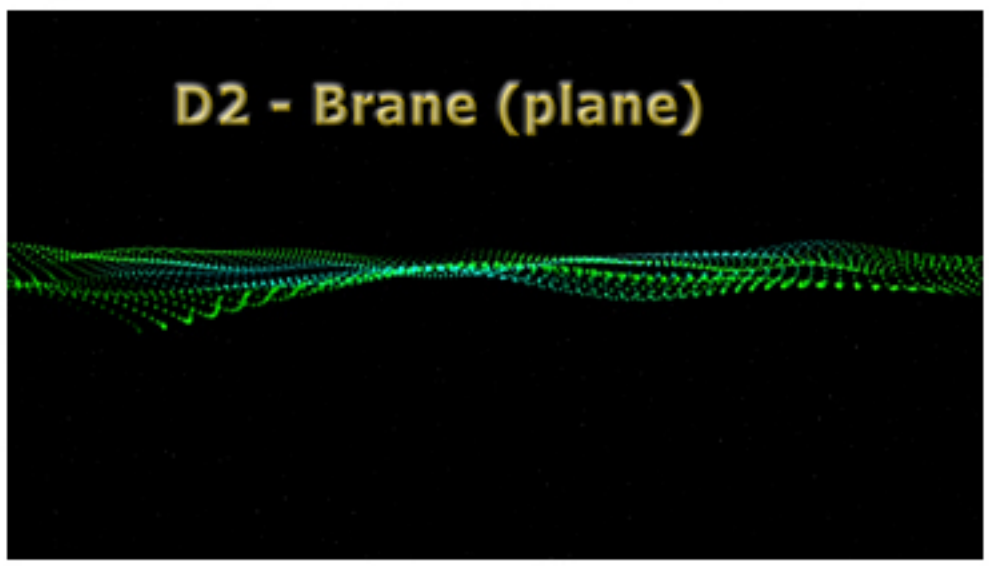

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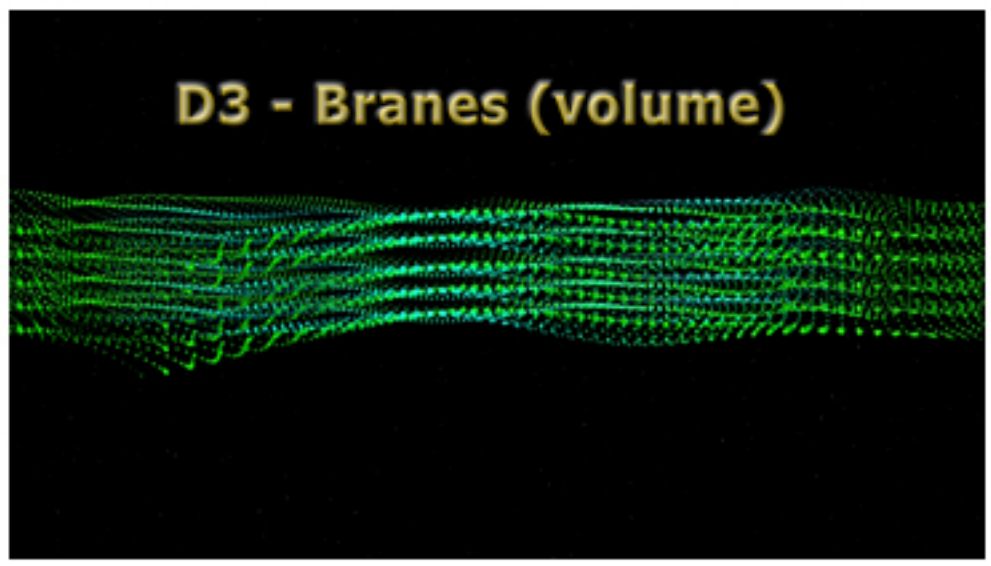

Fig. 5

PRE-BIG BANG COSMOLOGY

In this conceptual model there may be two forms of impetus for the Big Bang, colliding branes or colliding waves. As: The Ekpyrotic Universe: Colliding Branes and the Origin of the Hot Big Bang of Ref(1) or Entropy generation and inflation in wave collision induced pre-big-bang cosmology of Ref(2). Regardless what caused the initial impetus, it is assumed a collapse followed by an expansion and inflation occured. In this model what sets apart the singularity of the Big Bang and the singularity of a Black Hole is a Black Hole collapses within the structure of our existing space.

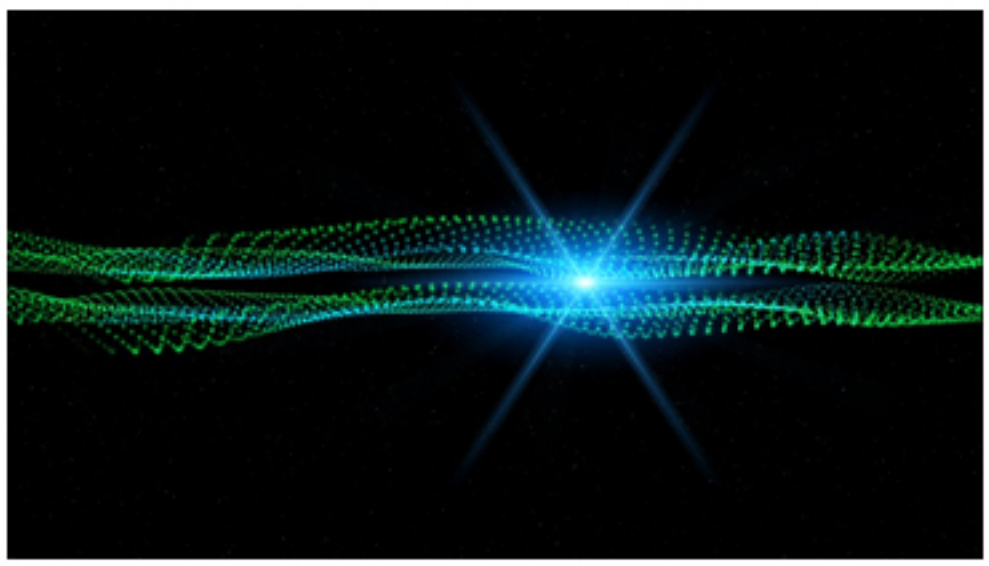

Fig. 6

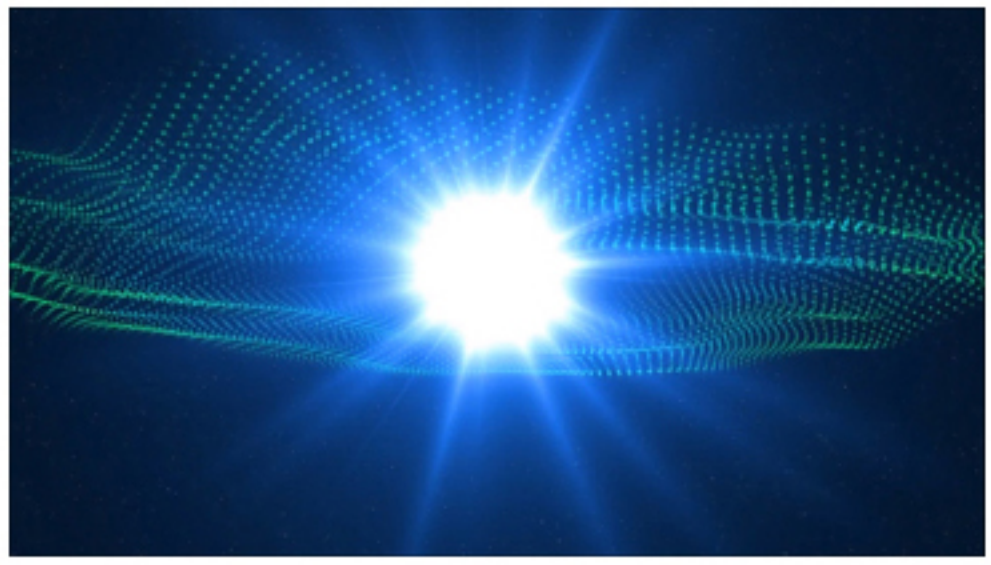

Fig. 7

Fig. 8

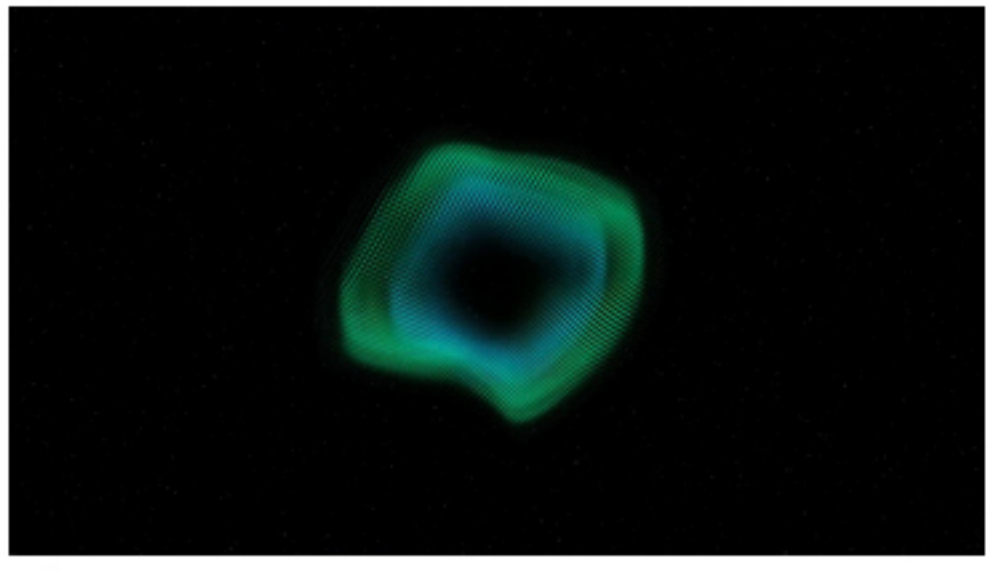

Fig. 9

THE STRUCTURE OF PRESPACE AND POSTSPACE

Although the makeup of Prespace and Postspace are made of the same objects in this conceptual model, as is ice and steam, ice does not flow and steam can dissipate. It is assumed that there is very little relative movement within the Prespace structure. But every now and then planes of Placement Particles do collide with each other (or are squeezed by waves) causing a collapse which causes a singularity, followed by expansion and inflation. (See Fig. 2-5) What sets apart Prespace from Postspace is motion. This motion is assumed to be the cause for the breaking of the symmetry of our universe. Which would otherwise have the same force. In this conceptual model the expansion is more of an unraveling than an expansion, although the result is the same. It is as if once Prespace is collapsed and put into motion from then on this action tries to unravel. To stretch back out into the original form, stop and slide back into Prespace. We and all the matter and energy of the universe are just the fluff and eddy currents in this process of unraveling and reorientation back to the original state. Our universe will expand until everything is just lines of Placement Particles that come to a stop and slide back into Prespace. As if we were never here. (Prespace is different in this conceptual model from example Algebras, Quantum Theory And Pre-Space, Ref. 4 in that in this model Prespace is actually here before our present space, but still underlies our present space.)

INFLATION AND ACCELERATION OF THE UNIVERSE

In this conceptual model it is assumed that inflation and acceleration are aspects of the same force at different times in the universe (in other words unravels at different rates at different times in the universe history). (see for example Inflation, dark matter and dark energy in the string landscape Ref. 3)

LINE SPACE, STRINGS AND BRANES

As the singularity of the Big Bang unraveled which gave rise to the antigravity like inflation, Line Space began to form. This becomes the most basic structure to our present universe. Planes of Placement Particles can form Branes, and on these Branes there can be resonances of String structures. They will follow the present mathematical constructs existing, but also these Strings can pass from plane to plane passing the resonance across space. They do not have to occur in one particular place, they can occur in various places and even in two places, thus giving rise to the Uncertainty Principle as a fundamental property of quantum systems. Also in the case of Entanglement the planes can pass from one end of the universe to the other. Entangled resonances when acted upon simply switch along given planes. It is assumed in this conceptual model that the action of the nonlocal system is that a message is sent back into time and received by the other entangled particle just in time to change at the same time as the particle acted upon.
In this it is also assumed in this conceptual model that all particles experience nonlocality and that time can be distributed from the moment past the singularty of the Big Bang and on, what here is given the term for particles as nonlocal space and time. This also applies to the Double Slit Experiment. That because time and space are nonlocal the particle is free to explore time and space sending a message to itself in the past and affecting a change to be within any allowed probable location. With similar results as having a guiding equation with its pilot-wave. (See for example On The Intuitive Understanding of Nonlocality as Implied by Quantum Theory Ref. 5)

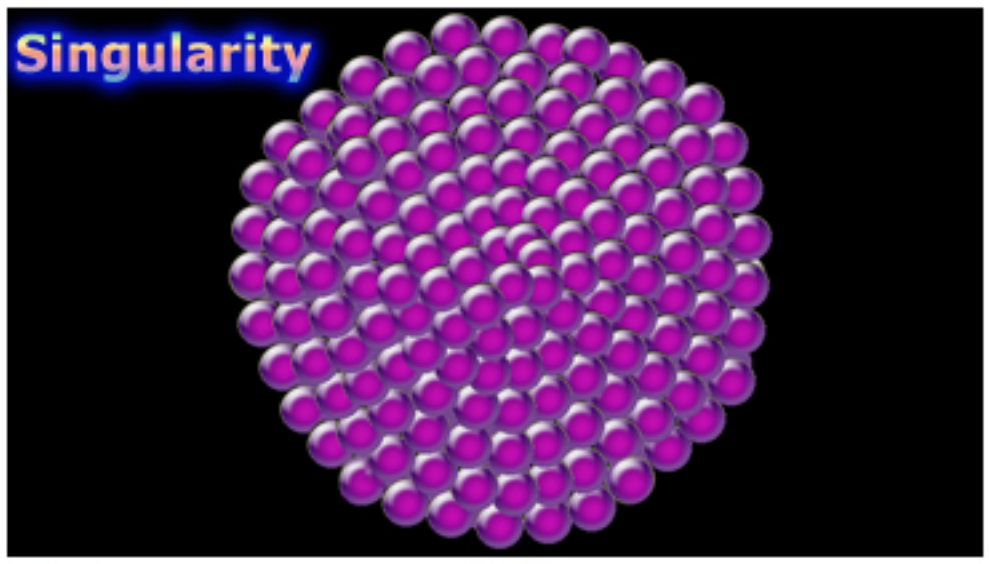

Fig. 10

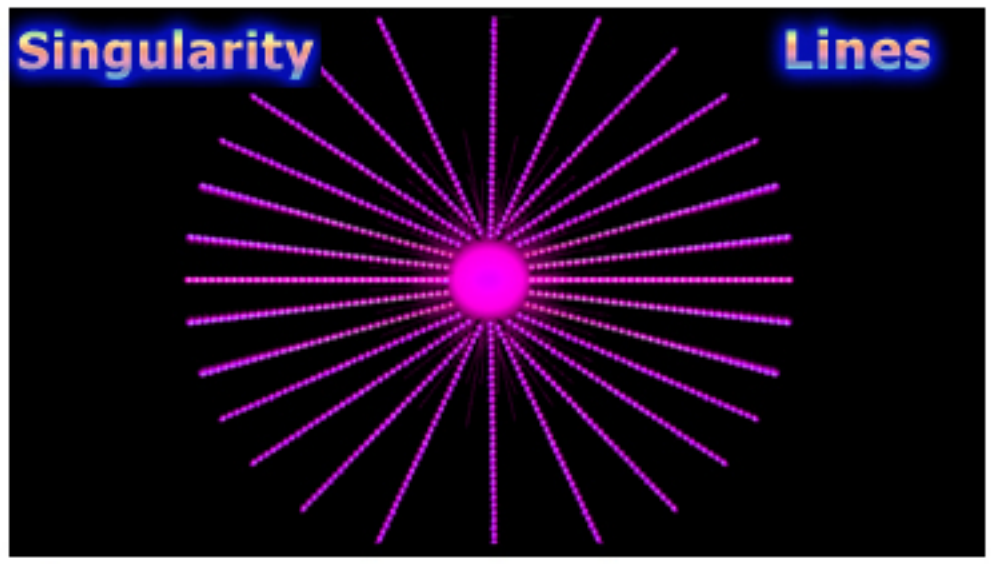

Fig. 11

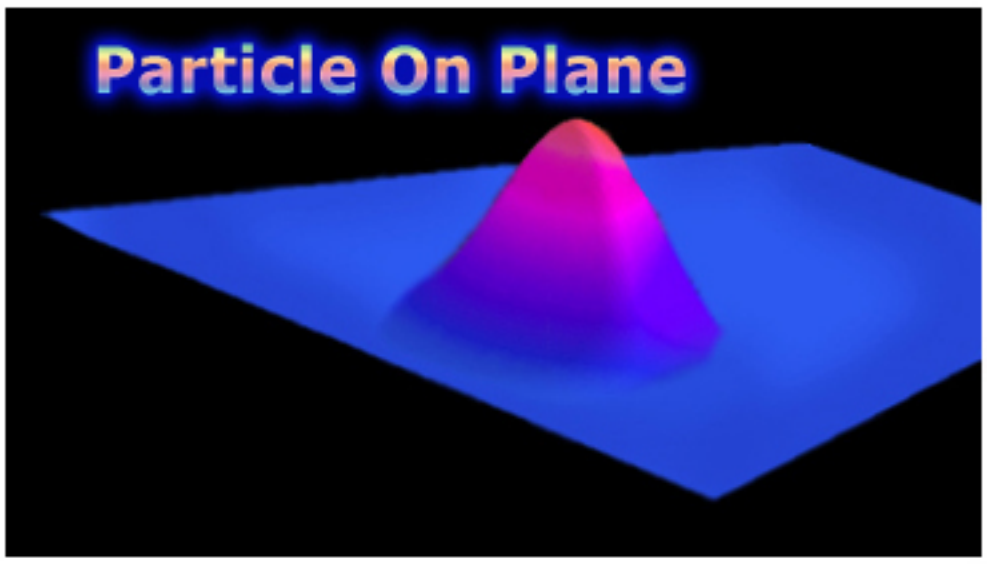

Fig. 12

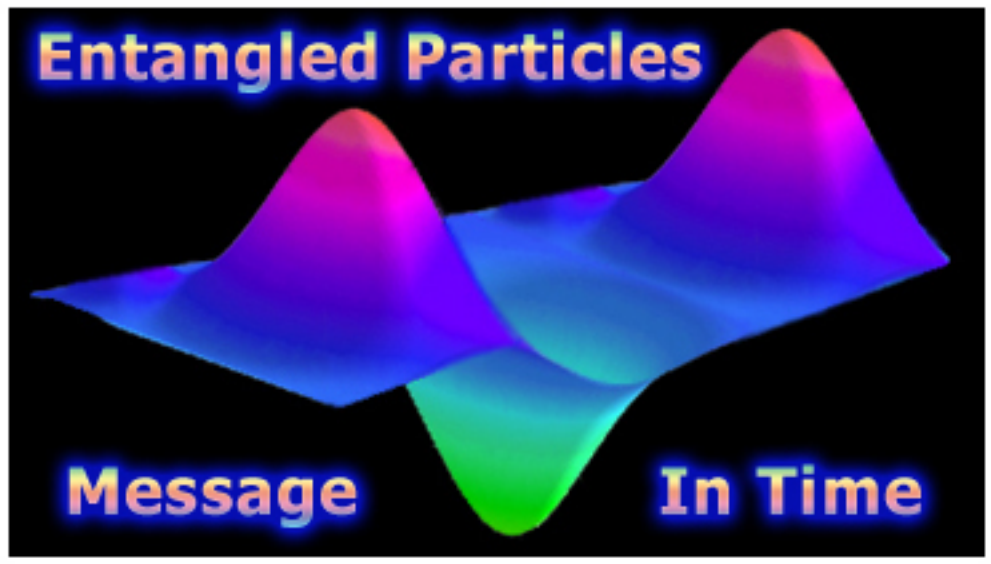

Fig. 13

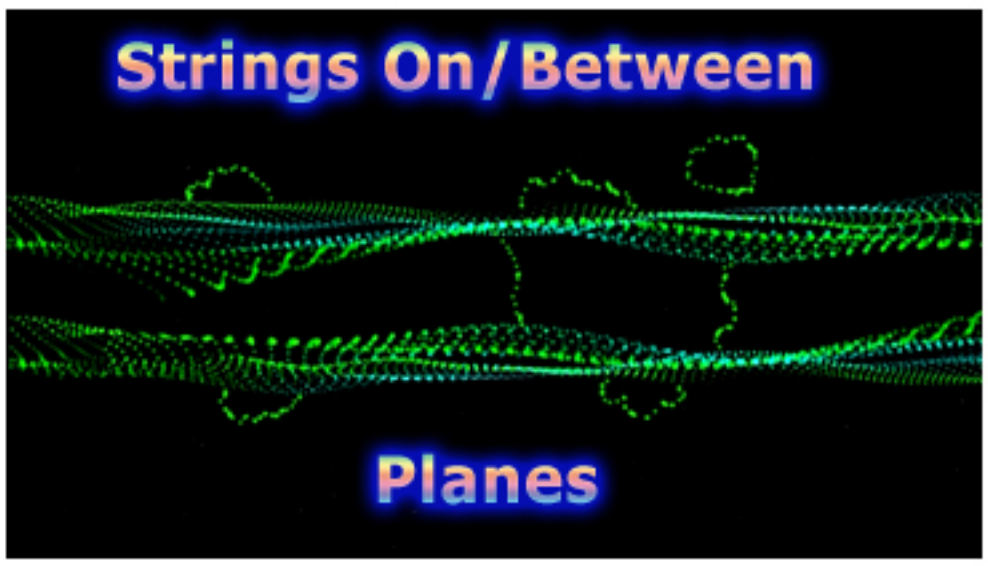

Fig. 14

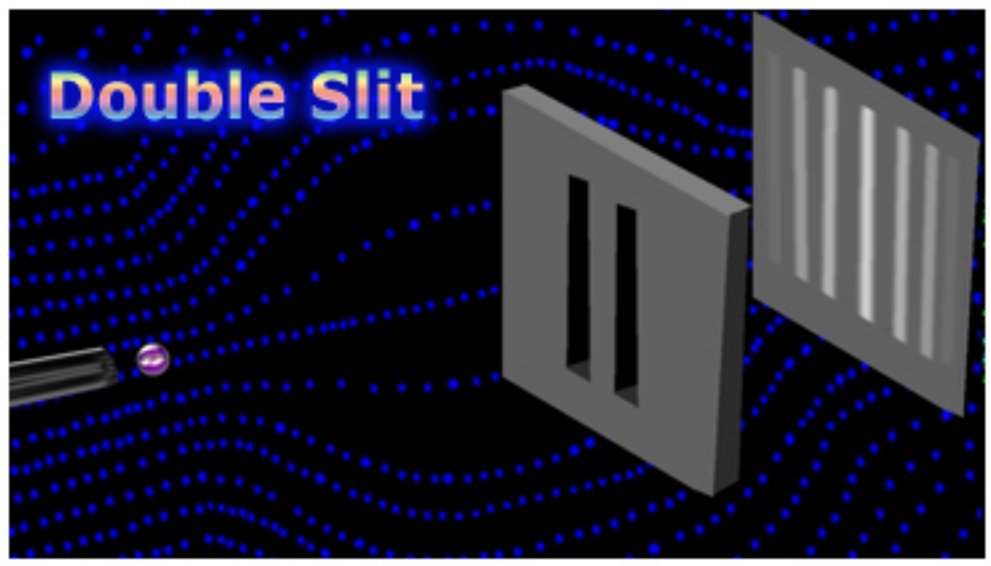

Fig. 15

RELATIVITY AND QUANTUM GRAVITY

It is assumed in this conceptual model that Space and Time on the quantum level is uncertain. That as one approaches the quantum world, time and space become uncertain and spread out into the fundamental Line Space. It is assumed in this conceptual model that as the universe unraveled that some lines were moving faster than others causing closed string loops to form, which formed gravity. The quantum implication is that gravity is curved space by virtue of more lines unraveling out of massive objects, and in turn forming closed loop strings. In other words the more lines the more space is curved. Which is assumed in this conceptual model to be the reason why there are no naked singularities and that the cosmic censorship applies because at the level of the extremal black hole the lines coming out are only dense enough to cover the singularity and anything less would just unravel back to Line Space via forming particles which in turn red shift back to Prespace. (See for example String Theory and the Space-Time Uncertainty Principle Ref. 6)

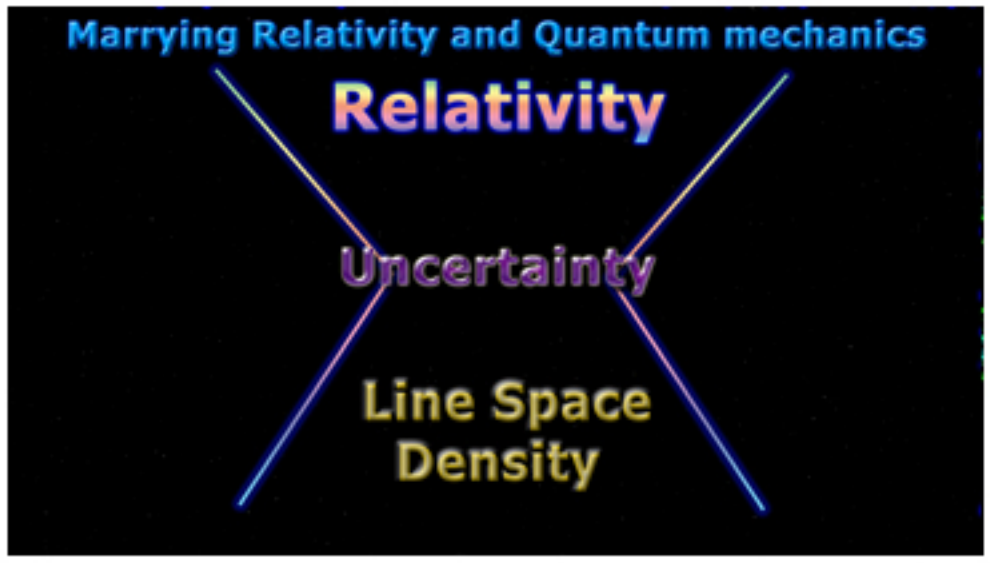

Fig. 16

PARTICLES AND UNIVERSES

On the most hypothetical side of this conceptual model is that universes are quantized as well as string constituency which would explain why we see only the stable particles we see. Any other wavelength associated with the string is unstable and rattles itself back down to stable particles. Also it is possible that Placement Particles are just another name for Partons. And that the curled up dimensions are loops in Line Space.

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