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Particle Physics Based on Real Dimensions of Space-Time

Prabhakaran Natesan *
Working in UAE, Age: 33, Home country: India. Area of interest: Modern physics

Corresponding Author:** ***Prabhakaran Natesan, *Working in UAE, Age: 33, Home country: India. Area of interest: Modern physics*

Abstract: *The mysteries of particle science such as dual nature of a particle to behave as a particle as well as wave, probability wave collapsing into a particle when observed, super-position of particle, entanglement of two particles with one quantum state etc., are revealed with real dimensions of space-time and hence in this journal, the difference between general physics and quantum physics is solved in absolution.*

Key points:

- *(i)* ***Dual nature of a particle:*** *The famous double slit experiment by former scientist Mr. Thomas Young, has an unsolved mystery of particle to behave like a wave when unobserved and behave like a particle when observed. There is a big puzzle of how the experimenting particle knows whether somebody is observing it or not.*
- *(ii) The particle behaving like a wave has a probability to exist everywhere, which is termed as* ***'Super-position' of a particle****. And collapsing of this wave into a particle when observed, is said to be one reality while there are so many other realities unobserved at the same time. This has developed the theory of 'many worlds'(multiverse) to exist.*
- *(iii)* ***Quantum entanglement:*** *This is a communication between two particles in one quantum state. This is also an unsolved mystery which is unknown to exist physically. Also, the communication is faster than the speed of light such that if the entangled particles are separated by a distance of the entire Universe, the changes in one particle instantaneously affects the other particle.*

Keywords: *Quantum entanglement, super-position, minute field waves, particle spin, fundamental sp-ti waves, real dimensions, sp-ti 0, sp-ti 0 axis, quantum tunnel length, zero-distance, curvilinear & radial paths, Intermediate zero points.*

1. INTRODUCTION

- In our previous paper we have studied that, the particle is associated with its fundamental field and thus behaves as a wave. And its particle nature is supposed to evolve into an object in space-time and come to the surface of life (existence). The dual nature of wave-particle shall be clarified with Fig 70 (previously), as path of the particle around sp-ti 0 being a wave and so the shape of the particle along this path is also a wave (summarized in Fig 78, in this journal). Thus, space-time is said to be the pool of mixed (colors) fields, called as 'sp-ti pond'.
- The communication between two entangled particles was unexplainable with 'relativity' theory and hence Sir Einstein defined it as 'spooky action at a distance'. This communication channel was later termed as 'quantum tunnel' in modern science. However, the nature of quantum tunnel remains a mystery. In this study we shall visualize the length of this tunnel, possibly with three available real dimensions discussed so far. The hidden nature of quantum tunnel is associated with fourth dimension of space-time (studies to be published in continuation journals).
- Mr. Young's double slit experimental results, with major unsolved puzzle saying, how an electron could ever know the experimentation of whether it is in observation or not? And thereby alter the output accordingly, shall be solved with proper and logical explanations in reality without having to think of any time travel undergone by the particle or even think particle physics to be a future deciding factor of existence.

1.1. TABLE OF REAL DIMENSIONS

Table of new discovered dimensions in space science			
S. No.	Real Dimensions of space-time (In terms of Aspects)	Path / Nature	Object oriented dimensions in space-time (In terms of Measurements)
1	Wide	Curvilinear	Length L (Wide)
			Width W (Wide)
			Height H (Wide)
			Radius R (Wide)
2	Deep	Radial	Deep Radius rd (Deep)
3	Minute	Oscillation	Waveform (Minute)

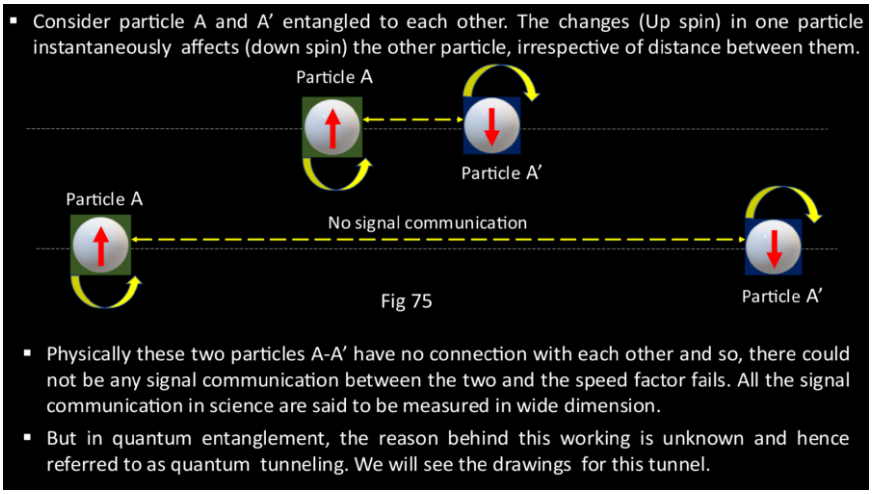
Important note: The above table with three real dimensions are sufficient to serve the basics of space science. As it has mainly solved,

a) The misinterpretations of length contraction and time dilation in existing studies and how to assume and observe these two variations in space-time (Journal_1&2, Issue 8, 2022).

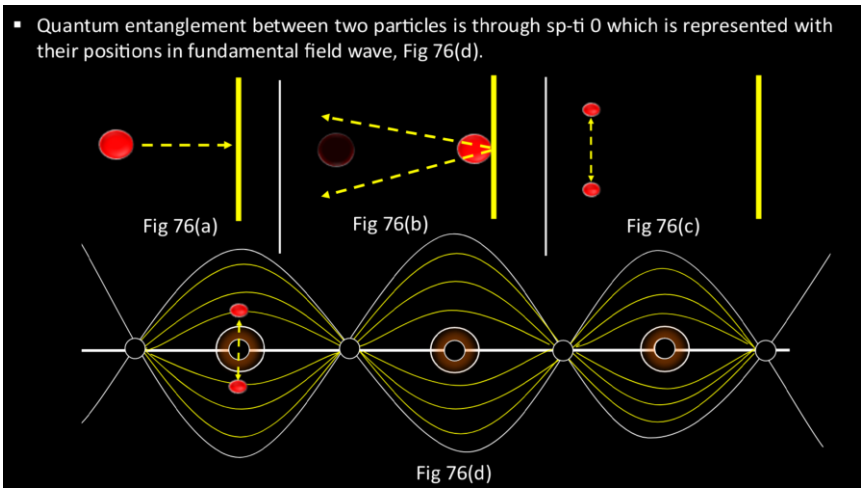
b) Incompatibility between general theory of relativity and quantum mechanics (Journal_3, Issue 9, 2022).

For complete study& continuity, titles of previous journals, available in references.

2. QUANTUM ENTANGLEMENT (Fig no.74 in previous paper, study continues…)



(Single line drawings shall be considered to have drawn in space-time itself)



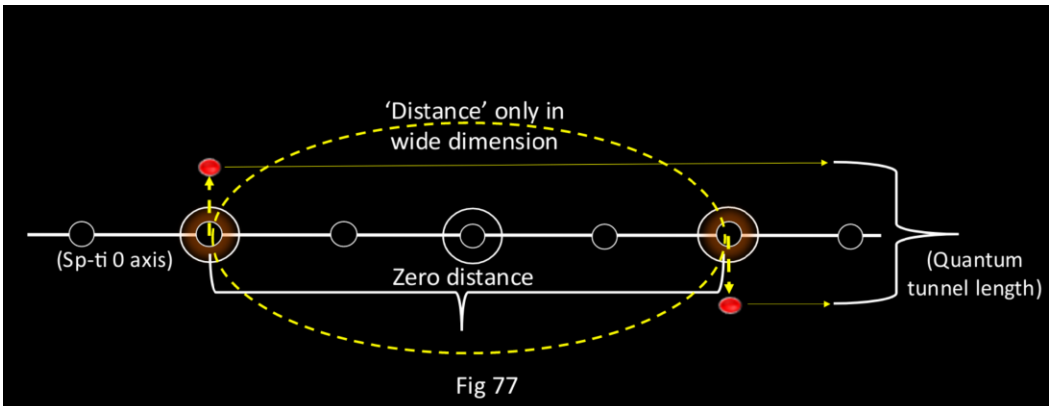


Fig 77

- Now, separating the two entangled particles even by large distances, the quantum tunnel length remains the same, Fig 77. The gap between the two separated particles in sp-ti 0 axis is said to be with zero distance.
- Again distance is a measurement made in wide dimension only.

(Single line drawings shall be considered to have drawn in space-time itself)

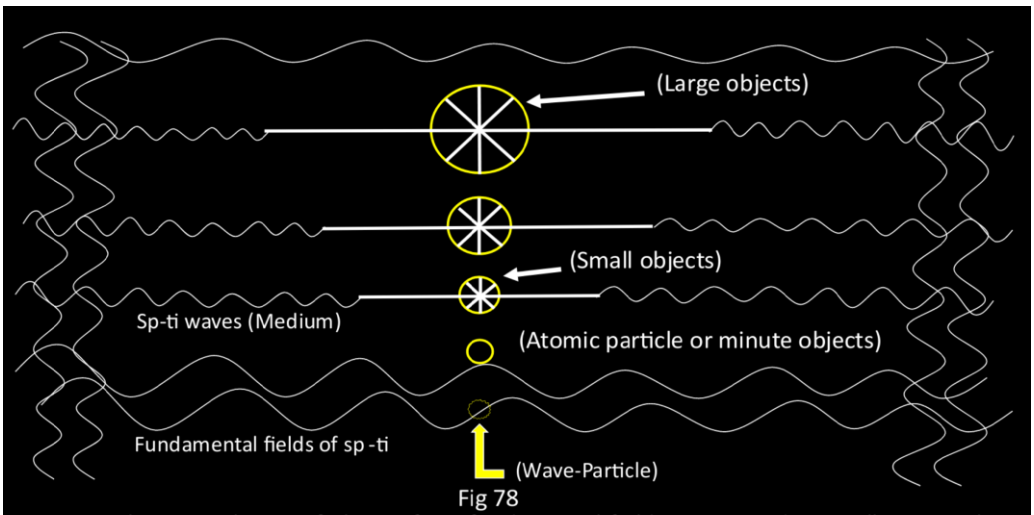


Fig 78

- Fig 78 shows, evolution of objects from fundamental field represented vertically . Here the sp-ti waves serves the medium for existence of objects and field waves for particle creation.

2.1. SUPER-POSITION OF PARTCILE IN TERMS OF SPACE

- Dual nature of a particle to behave as particle well as wave.
- Super position of particle along its wave. (Explanation in terms of space)

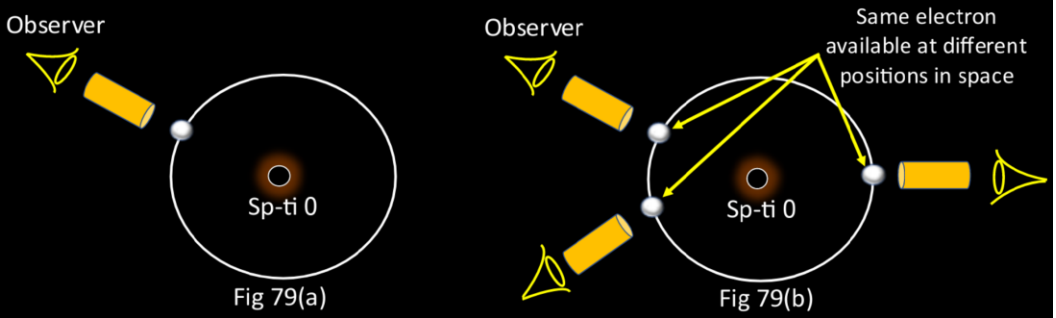


Fig 79(a) Fig 79(b)

- Here, for simplicity, an observer is observing an electron evolved from sp-ti 0. This electron must be away from zero as in Fig 79. Now suppose if the same electron is observed by another observer from a different direction, it must be available for his observation as well.
- Nature has made a special case for the particles, to evolve spherically from sp-ti 0 and be available in all the directions. Hence the minute dimension is said to be a non-directional region with a boundary. Beyond this boundary the particle has purpose and so a direction.

2.2. SUPER-POSITION OF PARTCILE IN TERMS OF TIME

- Dual nature of a particle to behave as particle well as wave.
- Super position of particle along its wave. (Explanation in terms of time)

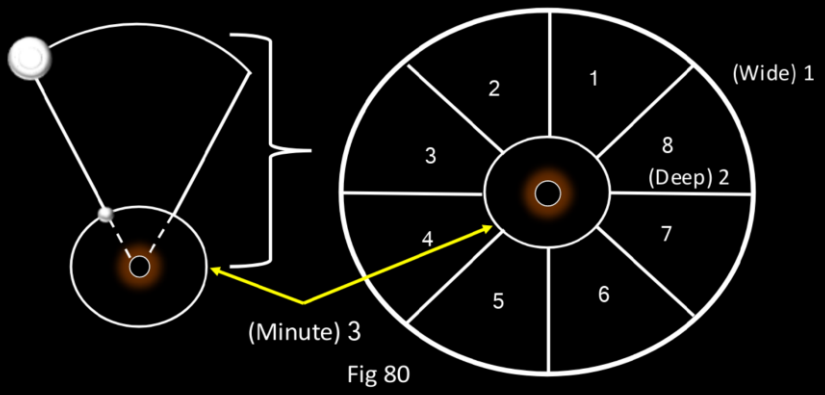


Fig 80

- Let us divide the representation diagram of three real dimension into 8 sections as shown in Fig 80 and consider one part of it for simple understanding. This single part could further taken as straight line diagram, Fig 81.

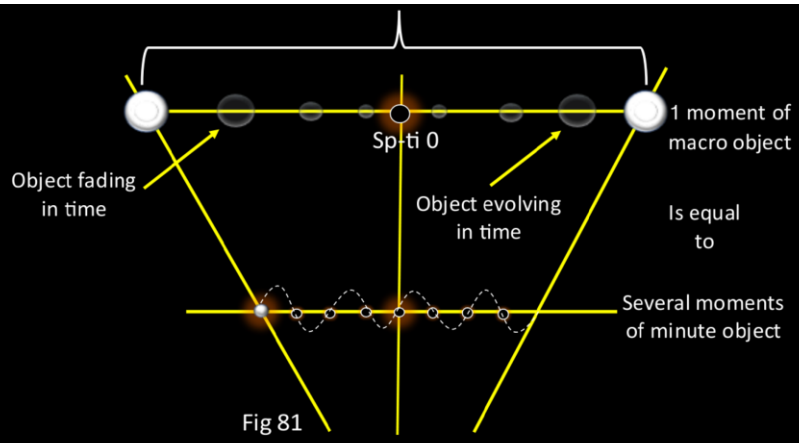


Fig 81

- One moment of observer is not same with the moment of a particle which is at a reduced time scale. It will have several moments such that it appears to be always available for the observer. Though it enters many sp-ti zeros at high speed, it is never seen to have disappeared.

2.3. SUPER-POSITION OF PARTCILE IN SPACE-TIME

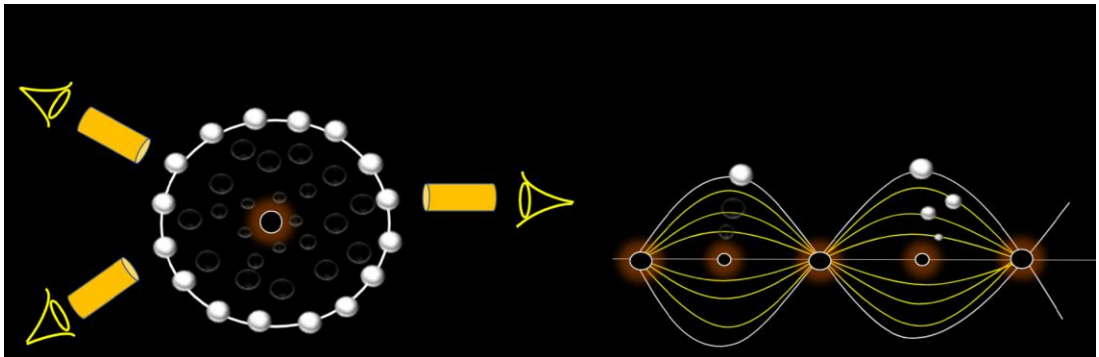
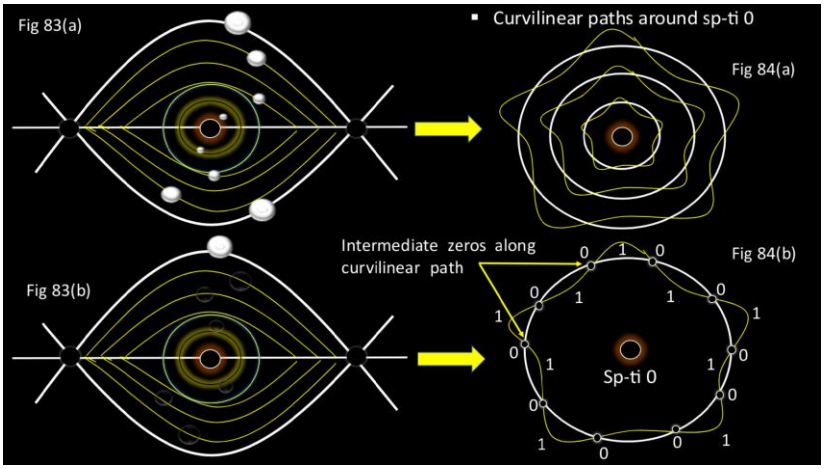


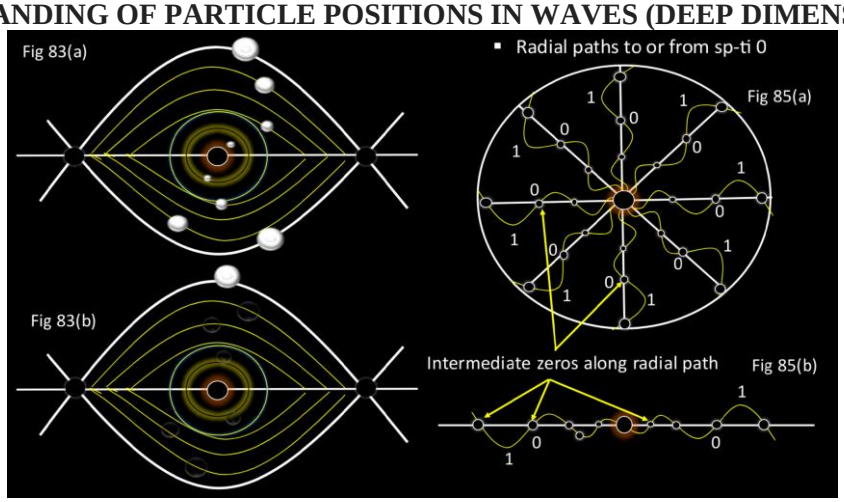
Fig 82 Fig 83

- Diagram for super position of particle in minute dimension is same for both space and time as shown in Fig 82.
- Fig 83, could be used to show one electron evolving from sp-ti 0, growing in size to reach wide path of minute dimension. The same diagram could be used for particles of various sizes by splitting the diagram as follows.

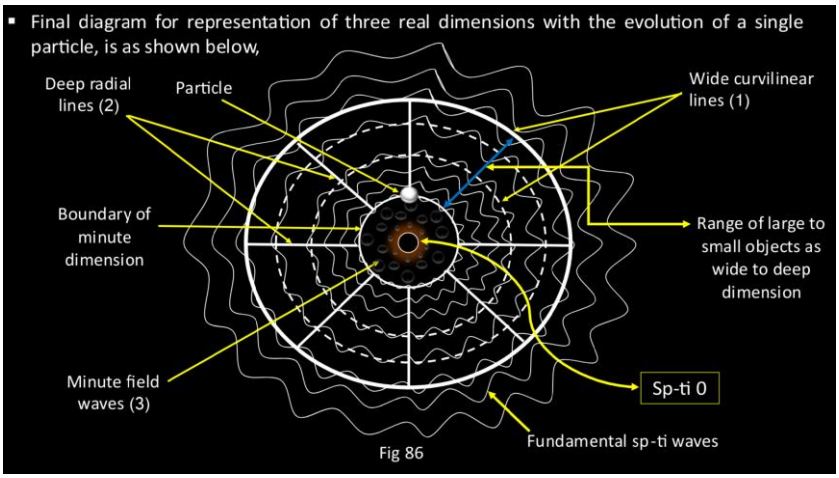
3. UNDERSTANDING OF PARTICLE POSITIONS IN WAVES (WIDE DIMENSION)



3.1 UNDERSTANDING OF PARTICLE POSITIONS IN WAVES (DEEP DIMENSION)



4. THREE REAL DIMENSIONS WITH EVOLUTION OF A PARTICLE



❖ **Summary of three real dimensions solving the puzzles of quantum mechanics so far,**

(i) Quantum entanglement between the two particle has a zero distance and the total quantum tunnel length is shown to be unvarying, as its path is through the sp-ti 0. Means both the particles are entangled to each other regardless of their distance in wide dimension, as the connection is made directly with particles on either side of sp-ti 0 axis through sp-ti 0.

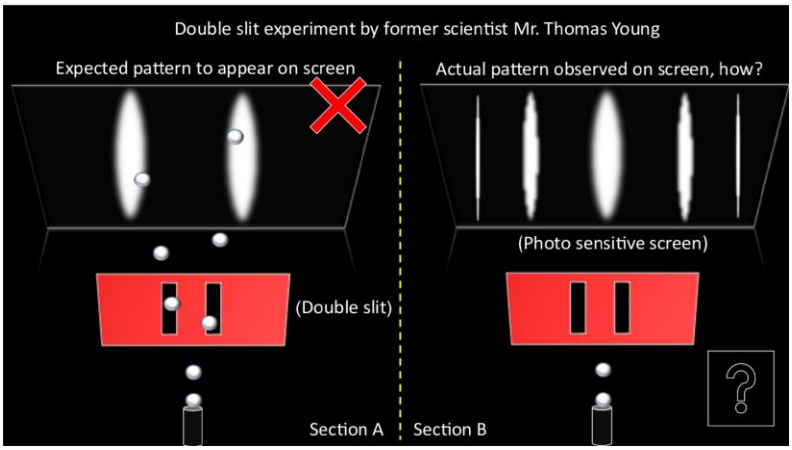
(ii) However, one may wonder about the sp-ti 0 axis for its length, which in turn should constitute a distance. This axis is not physical and it is associated with fourth dimension of space-time. There are lot of things unknown and not distinguished yet such as sp-ti 0 axis, male-female sp-ti waves and gravitation, shall be made clear with next dimension.

(iii) The above drawings explain the dual nature of particle to behave as wave-particle, its super-position in space and time. But there is one more mystery unsolved, which is the probability wave collapsing into a particle when observed and remains as a wave when unobserved.

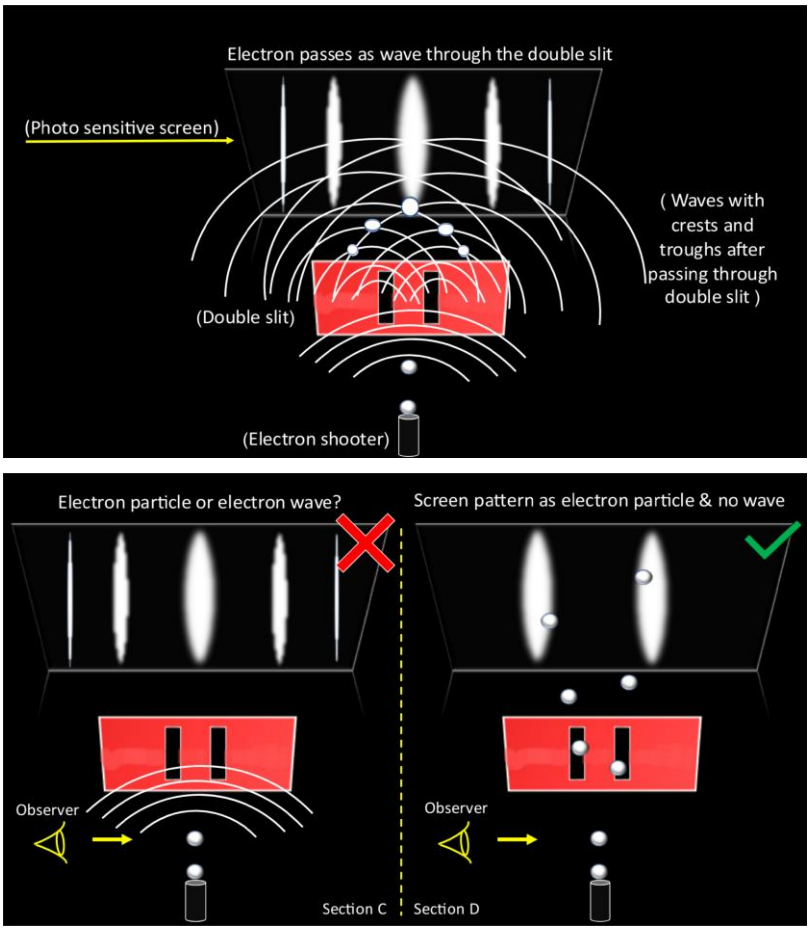
(iv) The problem is, how the results change according to the observation made on the particle, after all observation is concerned with conscious of human. Does electron have conscious to react according to the situation, that too for oncoming situations (its future) set by the observer.

(v) To understand this, we will see the illustrations by Mr. Thomas Young in his experiment to show how the electron changes the result pattern on a photosensitive screen whose solution shall be studied in the points of discussion. Experimentation setup shall be visualized in sections as follows,

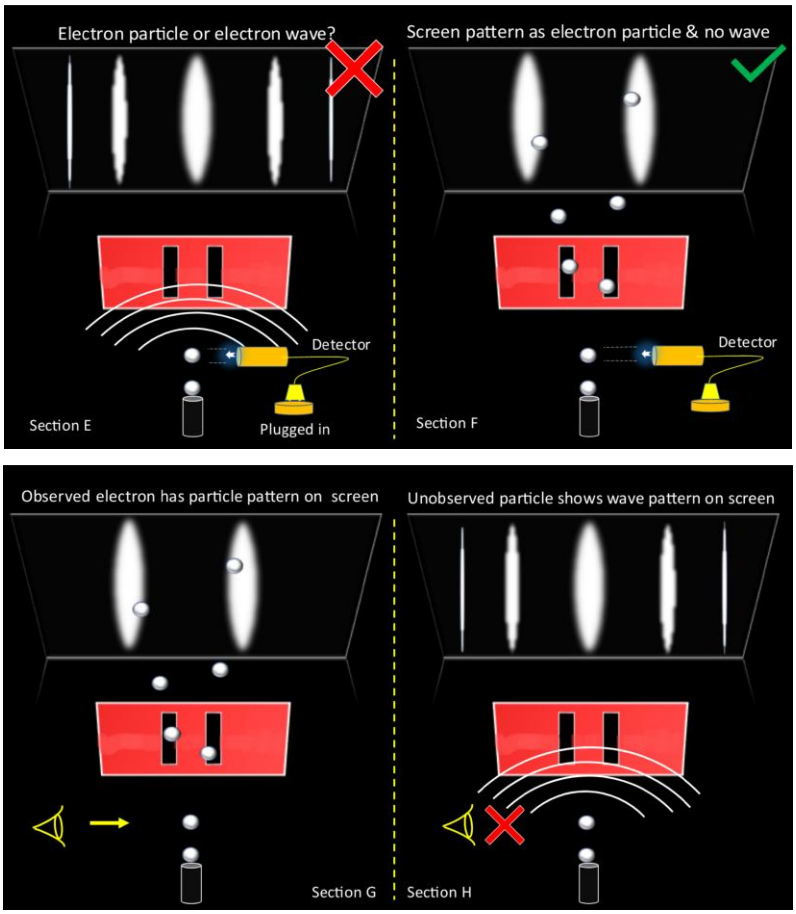
5. DOUBLE SLIT EXPERIMENT (PARTICLE-WAVE PATTERN ON SCREEN BASED ON OBSERVATION)



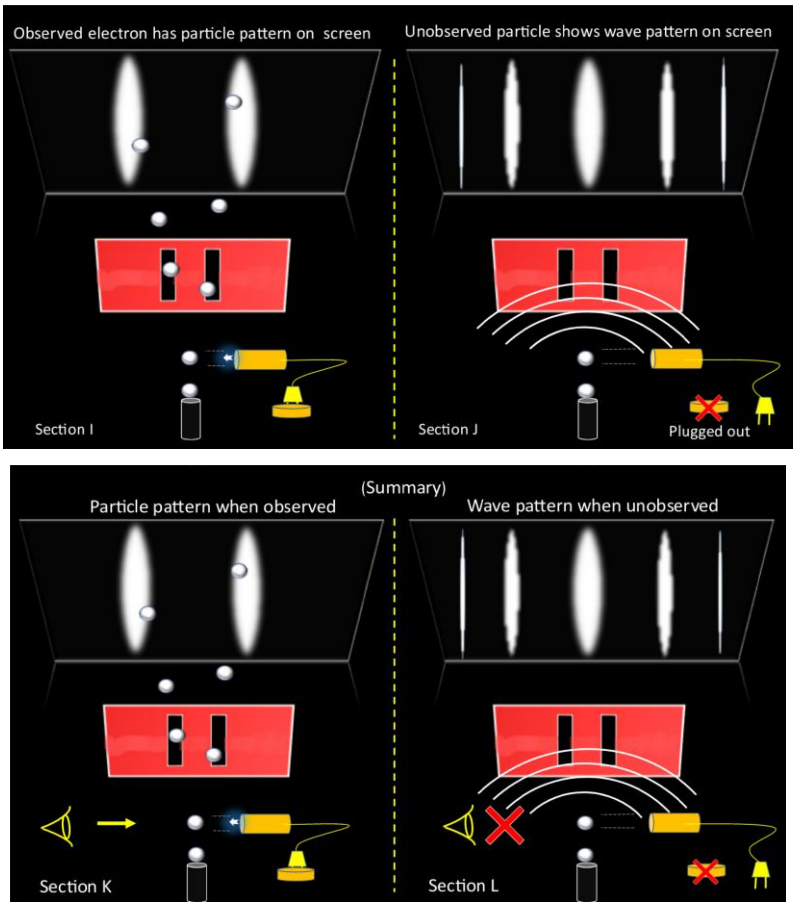
(Young's double slit experiment – Ref physics text books)



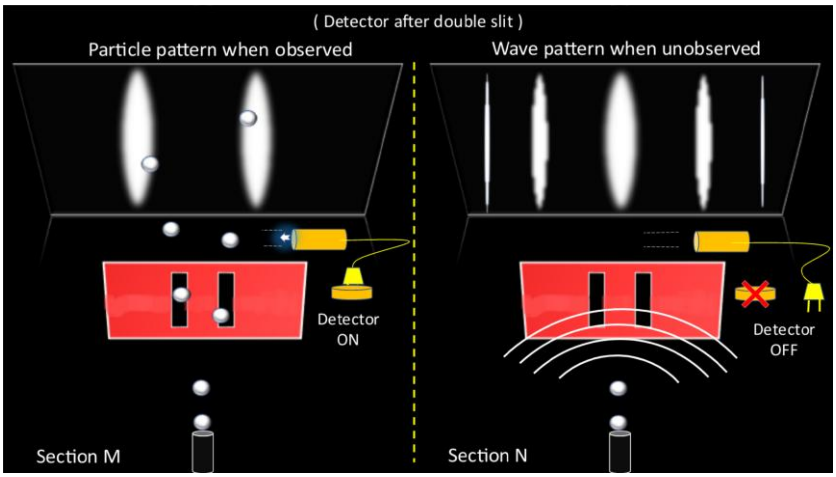
(Young's double slit experiment – Ref physics text books)



(Young's double slit experiment – Ref physics text books)



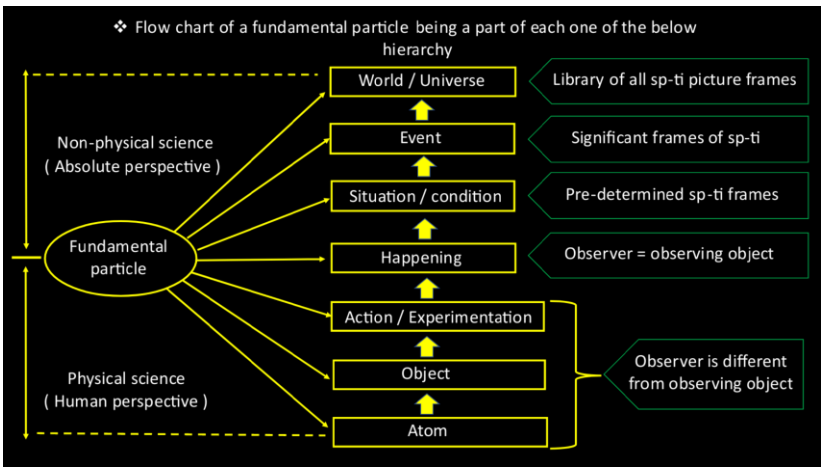
(Young's double slit experiment – Ref physics text books)



6. Double Slit Experiment – Arriving Solution

a) Short story description: Paramartha guru (a simpleton) and his five disciples (innocents), had to get to the other side of a river to reach the neighbor village. After crossing the river, they wanted to ensure if all 6 of them are alive. Each counted the other five without including the self and exclaimed we are only five of us and one person is missing. A pilgrim who passed by, found these people sitting upset and inquired about the matter. He could count six of them visibly and understood about their intellect level. He promised them to find the lost man, if they could offer him money or something. They were happy to offer little gold coins all they had, if he brings the lost one back. The pilgrim took a stick and asked all of them to stand in a row, bending down, closing their eyes and wanted each one to say their name when he touches them. Everyone heard a loud whack followed by person screaming their presence with name and count. Finally, when the last person counted the number six, he said everyone to open their eyes and plainly see they are six of them now. They were convinced and happily offered the gold coins to the pilgrim and went to the village.

b) Moral connection with the experimentation: The observer has the mystery of how the electron knows or have the conscious of whether the detector is placed (turned ON/OFF) for observation or not. Now, there are only two patterns, particle and wave types resulted on the screen, when observed and unobserved respectively. And this is also irrespective of whether the observation is made before or after the double slit. The following chart solves the problem, in which the observer has to include himself in oneness (absolution).

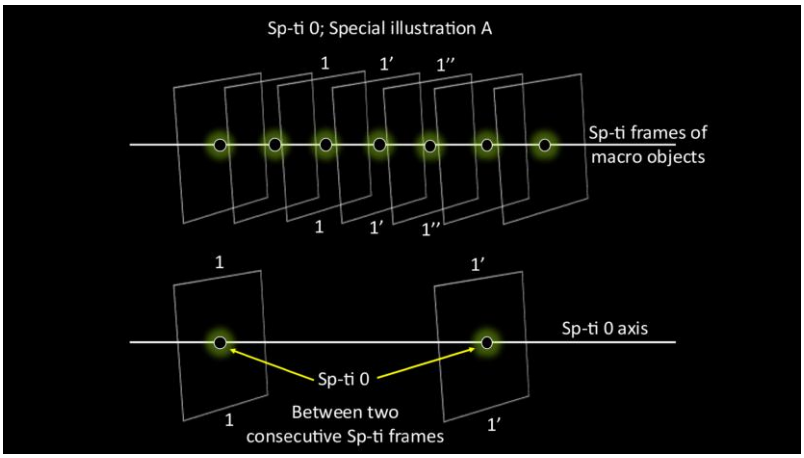


6.2 Flowchart description

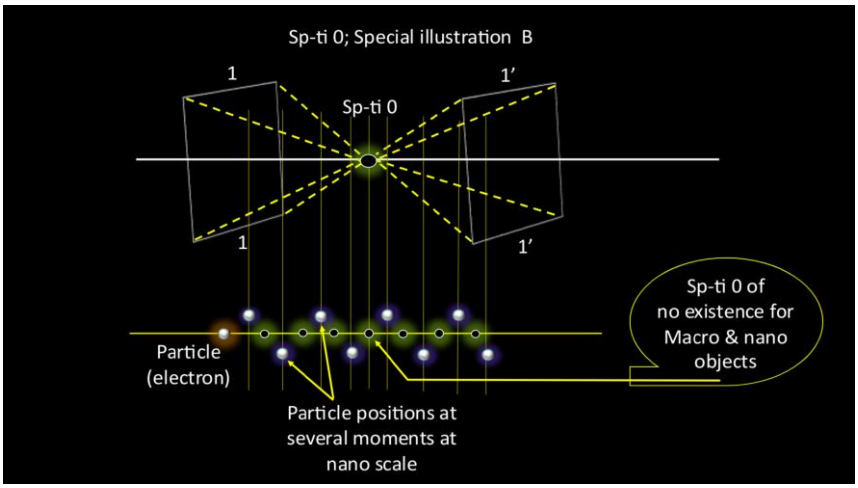
- The flowchart shows a hierarchy starting from an atom to entire Universe. A particle is not only a part of an atom, but it is the part of an object, action of objects (observation or experimentation), in these three stages, the observer and the observing object are different.
- When it comes to 'happenings' in life, it is not controlled by humans and at this point observer is same as the object, means observation is not a point. The whole thing is captured in a picture by life called sp-ti frames. The question is obvious that, on what basis these frames are layered?

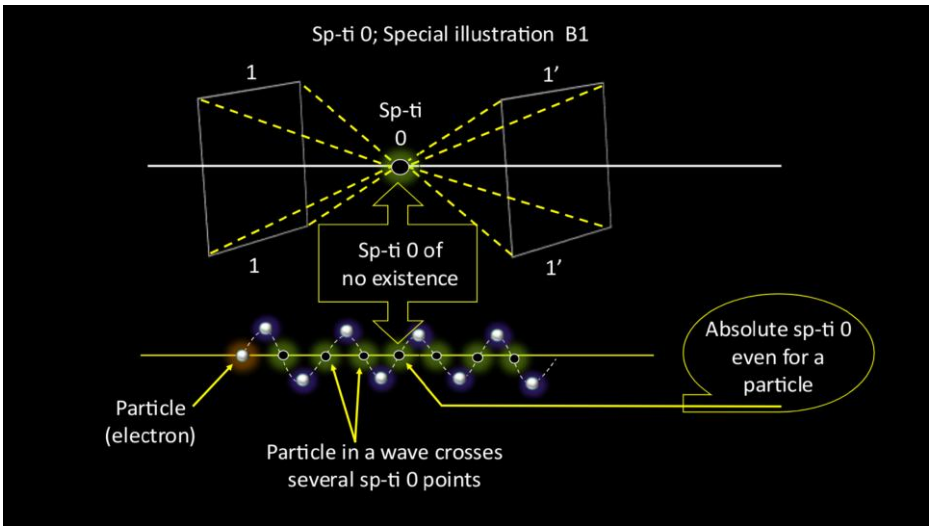
- Life must have a purpose of living for every single object through a path leading from source to destination. Sp-ti frames are layered with a connectivity of cause and its consequence.
- Same way past-present-future traps the human mind. Is this only associated with time? No, space and time shall not be separated and all the three tenses are said to be in picture format. Means sp-ti frame is a live motion picture.
- There shall be, filled sp-ti called color pictures and empty sp-ti called black background behind the displayed picture.
- More than a 'happening' in the chart, the science is beyond human limits. Now, the problem is, a scientist could give up to say, his body is equivalent to particle body, but he needs his mind not to be included in absolution, as it is required to keep it for thinking.
- Now, dead bodies do not work, so one shall surrender his mind like any other object in the existence, as there is a way to derive the studies associated with mind and world also.
- Thus, before concluding a multiverse theory, there is a need to study, what is the nature of human mind in reality? Perhaps, the way of perceiving absolution, itself shall change such that, it would be like being one with oneness rather than trying to understand what is oneness (singularity).
- How the perspective changes when human mind is considered to be an object? Sense of sight is the foremost tool of mind to understand. In that case space-time shall be visualized to be sp-ti frame moving from moment to moment.
- When it comes to absolution, there is no duality of question and answer, problem and solution, all these dualities are in combined form in singularity. To find or search for the answer or solution away from its question or problem respectively is due to limitations with human perspective trying to understand reality in a convenient format.

7. SPECIAL STUDY OF SPACE-TIME FRAMES (PAST 1, PRESENT 1' AND FUTURE 1'')

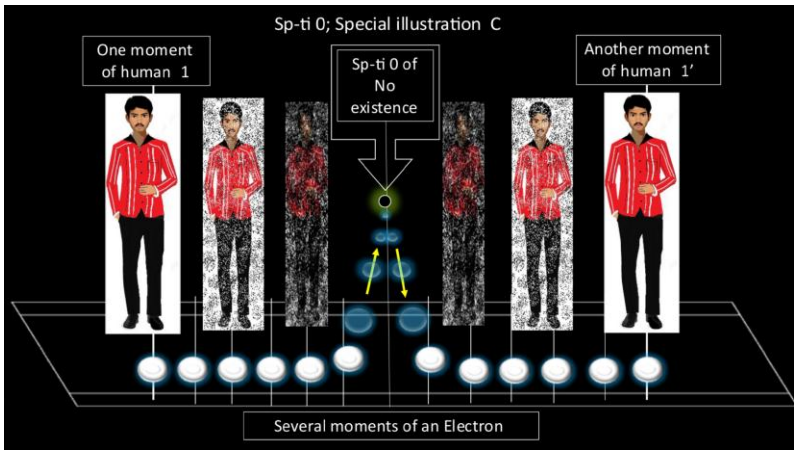


(Here, only the present sp-ti frame exists always and it is moving with past frame disappearing)





(Here, only the present sp-ti frame exists always and it is moving with past frame disappearing)



These illustrations show the absolute 'present' time (Singular) to exist at any point of Space-time and not 'relative' time which in turn is associated with human perspective.

8. Discussion and Conclusion

Points to remember

1) All the mysteries of particles are visualized with drawings. However, sp-ti 0 axis being an important aspect, to be explained in detail for more clarification and to know how space-time actually works. Studies will be continued in the following journals (gravitation).

2) There are some points apart from those mentioned in the abstract such as, particles could cross the barriers, particle to disappear at one point in space-time and re-appear at a different point etc. This possibility is due the entry of particle directly through sp-ti 0. Means the particles are continuously evolving in space-time, from sp-ti zero (depth) and dissipating like water bubbles on the sp-ti surface called 'life'.

3) The particles could cross the barrier while it is crossing sp-ti 0 at which the particle itself does not exist. And this is the reason for its appearance and disappearance. It is also possible for a particle to re-appear not just after the barrier line, but anywhere in the Universe, whose course of fate is untraceable.

4) Fourth dimension of space-time, which is quite complicated to imagine is simplified as much as possible with drawings to visualize and it has the complete study of gravitation to and from quantum gravity.

Conclusion

Sp-ti 0s are the ever existing 'God particles' indeed. Thus, mysteries of particle physics could be solved, but the self-existence of space-time is unexplainable. After all, human intelligence could involve in

terms of observation, experimentations and inventions but the knowledge of space-time, self-drives the life through creation, evolution, sustainment and destruction with or without man's intervention.

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AUTHOR'S BIOGRAPHY

Prabhakaran Natesan, Tamil Nadu, India. Bachelor's degree in Electrical and Electronics Engineering (2011) – Affiliated to Anna University, Chennai.

With self-reference, I have my original research work (Fundamental drawings) of "Fourth dimension of space-time – The complete study of gravitation".

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