Current Trends in Technology and Science
ISSN : 2279-0535. Volume : 04, Issue : 03 (Apr.- May. 2015)

Why The Speed of Light is an Absolute Constant: Because God Does Not Play Dice

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Abstract — At the beginning of twentieth century, two physical theories completely changed the way we traditionally perceived space and the physical time. These are the Einstein's the general theory of relativity and the Quantum Mechanics. About one hundred years passed, still we are trying to unify these two theories with some other necessary ingredients to have the theory of everything that describes all possible everything in the Universe. The general theory of relativity predicts that space-time is not flat; the distribution of matter and energy curves or wraps the space-time. Bodies try to follow the straight line path but because space-time is not flat, the body's path appears to be bent. It predicts that gravity is the distortion of space-time due to non-uniform distribution of matters and energy. It had been discovered that light does not reach to observer instantaneously; rather it travels at a certain constant speed of 186,000 miles per second or 300,000 km per second which is independent of source and observer movement. No matter at what speed the observer or the source is moving, the speed of light is always the same, an absolute constant it is. How can this be true? The general theory of relativity also predicts that the universal speed limit is the speed of light, which means that nothing can exceed the speed of light, an observation can check the validity of the statement, if anything can come out of the Black holes, it must be greater than the velocity of light as light cannot escape from Black holes. Now, what are the causes of the speed of light to be an absolute constant? Is that the Universe is very fine tuned to diminish the uncertainty principle to have one and unique history and future? The independency of source or observer and an absolute constancy of the speed of light support the unique history and unique future concept. Thus, the prediction of the determinism is absolutely valid because God does not play dice.

Keyword — The physical time, the general theory of relativity, the speed of light, matter and energy, The quantum mechanics, uncertainty principle, space-time, the universal speed limit.

1. Introduction

Sometimes, it is better to believe of a digital world. Many events are digitally coded, either zero (0) or one (1). Many evens are decisive events which are either yes or no. There is nothing in between. Many events are decisive events which are like a switch, an on or an off. The decisive events are either null or full. So, the human being encounter events with full comprehension are all digitally coded decisive, at least psychologically or rather within our psychological reach or limitation. The psychologically less comprehensive or incomprehensive events are all outside of psychological reach or rather outside of boundary conditions of psychological limitations. Thus, the solution depends on the probability [1-4] or uncertainty conditions [5, 6] which mean that they outside of psychological full comprehension. A particle is either in one place or in another [7, 8]. It cannot be half in one place and the rest half in another place. Similarly, an event like landing of astronaut on the moon is either taken place or it has not [9-12]. It cannot be half taken place. It is more like that you cannot be slightly dead or slightly pregnant. It is either you are or you are not. All psychologically fully recognizable events are decisive events, which leads uncertainty principle to all sorts of paradoxes like the particles being two places at once or astronauts being only half on the moon [13-15]. As due to causality, we cannot change past, the same way, due to anti-causality we cannot change future either. So, a system can have only single definite history and a single definite future too. The Universe is all about dealing with constants, a single definite result like the speed of light. Because all are constants, it is easy to deal with them, only need full psychological comprehension about the event. Thus, constants evolved from the decisive events, and they are very often around and they also are not greatest mistake of life unlike Einstein's Cosmological Constant which he termed as the greatest mistake of his life [16, 17].

2. Causality And Anti-causality

It is the cause and effect relationship of successive psychologically recognizable events is called the causality [18, 19]. Causality prevents to penetrate the past which means that past cannot be altered or modified, so the past is fully preserved and protected by causality. As causality relates past with present and future [20, 21], similarly, anti-causality relates future with present and past. Suppose we are standing between day and night. So, day is the past for us and night is the future for us. If day is causally related to the night to be future. Similarly night is anti-causally responsible for the day to be past. Our sophisticated future would not be called sophisticated, if past was not wild. Thus wildness and sophistication is causally related, and similarly, sophistication and wildness are also anti-causally related. If past stands uniquely defined due to causality, it is

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because future stands uniquely defined too due to anti-causality. If future would not be there, past would not be there as well and vice versa. If past is causally related to future, similarly, future is anti-causally related to the past. Thus, future is responsible for the past, the way it is. If cause relates effect, the effect relates cause too.

3. Why Absolute Constant Is The Speed Of Light

Light never travels instantaneously from source to observer, rather it has an absolute constant speed – 186,000 miles per second or 300,000 kilometer per second regardless of the movements of source and observer [22]. The question is why the speed of light is independent of the movement of the source and the observer.

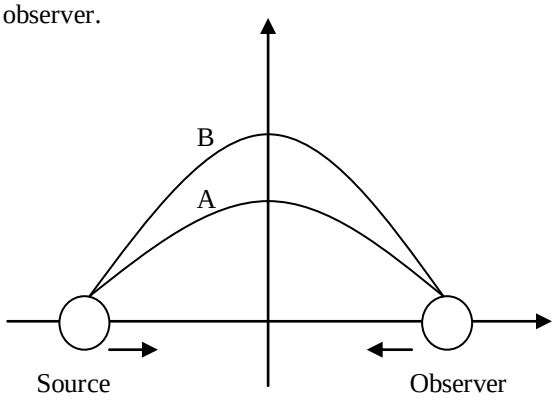

Fig 1: Source and observer is moving towards each other

If the source and observer moving towards each other, due to the movement, their effective masses increase and effective sizes decrease, thus their gravity also increases in proportion to the increased masses which bent the light path in positive direction as masses are all positive for our Universe. The faster they approach towards each other, the light path is more bent (B compared to A) due to motion towards each other. For observer, it is as if time runs slow because light reaches to the observer with a curved path, actually, light traveled the same distance as it would be in a straight path if both were stationary with respect to absolute rest, and also would take same amount of time as it would be if both were stationary with respect to absolute rest.

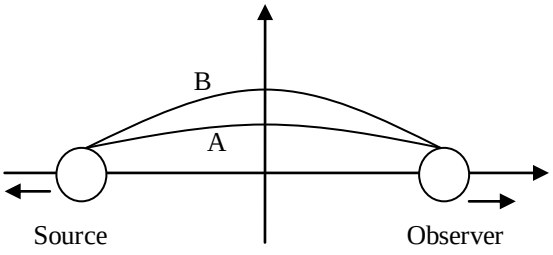

Fig 2: Source and observer is moving away from each other.

If the source and observer moving away from each other, due to movement, their effective masses increase and effective sizes decrease, thus their gravity also increases in proportion to increased masses which makes observer feel that the physical time runs slow again because the light path bent slightly due to motion. The faster they moving away, the less the light path bent and also light has to travel more distance with the speed of 300,000 km per second, thus need more time to reach to observer. The bent path of light, the decreased size, the increased distance, and the slowness of the physical time for observer are so fine-tuned to meet the constancy of the speed of light to be 300,000 km per second. Thus for observer it looks like the speed of light is the same. Thus, the faster they move away from each other, the light path is less bent (A compared to B) due to motion in the opposite direction.

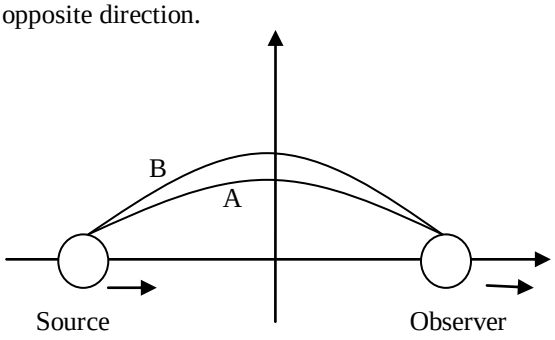

Fig 3: Source and observer is moving in the same direction

If the source and observer moving on the same direction, due to movement, their effective masses increase and the sizes decrease, thus their gravity also increases in proportion to the increased masses which makes observer feel the physical time runs slow again because the light path bent slightly due to motion. If the observer moves faster than source, the light path will be less bent (A), because the distance from the source is increasing. And if Source is moving faster than the observer, the light path will be more bent because the distance is decreasing (B). The bent path of light, the decreased size, the increased or decreased distance, and the slowness of the physical time for observer are so fine-tuned to meet the constancy of the speed of light to be 300,000 km per second. If both are stationary to each other, the light path bent will be compensated of the slowness of time for the observer as it would be if both were at absolute rest, then light path would be straight line and there would not be any slowness of time for observer.

4. Conclusion

The speed of light is always constant at 186,000 miles per second or 300,000 km per second. The change in masses due to motion of objects makes the distortion of the light path to be positively curved. The curvature is proportion of the change of masses. Thus, the speed of

light is independent of the motion of source and observer. The light path will always be bent when bodies are in motion. The light path will be negatively bent for anti-particle and for anti-universe as well. The light path is positively bent for us because the bodies are all made of positive matter for our Universe, thus, gravity is always attractive. The reason why all light-bents positive and occupy the upper half of X axis in an X-Y plane. Thus, we can conclude that the speed of light always has an absolute value: 300,000 kilometers per second.

ACKNOWLEDGMENT

I cordially admire **Dr. Aparna Nath**, Associate Professor and my PhD Guide, The department of Physics, National Institute of Technology, Agartala, India, for inspiration and motivation to write this particular paper with perfection. She not only helped me revise it in its details, she also got me with some important notes, suggestions and references.

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