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Theory of Space-Time Curvature

Abstract

This hypothesis proposes a novel perspective on time travel, suggesting that the universe, conceptualized as a cuboid composed of infinite space-time layers, allows for the possibility of traveling back in time by bending the present space-time fabric using gravitational machines. This theoretical framework explores the factors affecting time travel and offers a new interpretation within the context of Einstein's General Theory of Relativity.

Introduction

The concept of time travel has long fascinated scientists and remains a topic of debate among physicists. While traveling into the future is generally considered more feasible, the possibility of reverse time travel warrants exploration. This hypothesis aims to provide a theoretical basis for traveling back in time, building on concepts established by Einstein's General Theory of Relativity.

Theoretical Framework

Conceptualizing the Universe

According to Einstein's General Theory of Relativity, the universe is composed of space-time, a four-dimensional continuum blending the three dimensions of space with one dimension of time.

This hypothesis visualizes the universe as a cuboid where the past, present, and future coexist. In this model, our journey through time is seen as traversing from one layer to another within this cuboid structure.

Space-Time as a Cuboid

The cuboid model suggests that the universe consists of an infinite continuum of space-time layers, with each layer representing a specific interval of time. Imagine the universe as a stack of thin slices, each slice corresponding to a moment in time. As we move through time, we pass from one slice to the next, traveling from the past, through the present, and into the future.

Methodology

Bending Space-Time

The core idea involves the manipulation of the space-time fabric. By using gravitational machines, it might be possible to bend the present space-time layer, creating a deep curve. This curvature could hypothetically allow us to travel back in time.

Factors Affecting the Process

1. **Force Produced by the Mass:** The force generated by the machine's mass would directly influence the extent of the curvature.

2. **Angle of the Space-Time Curve:** The angle at which the space-time fabric is bent before and after the intervention.

3. **Velocity of the Force Application:** The speed at which the force acts upon the space-time fabric affects the duration to be traveled into the past.
4. **The Velocity of Galaxy :** The Velocity of Galaxy is a important factor while travelling back.

Equation for Time Travel Duration :

$$\Delta T = \frac{Gm}{c^3} \cdot \frac{\theta}{2} \cdot \frac{v_f}{v_g} \cdot K \,.\, E$$

ΔT is the time to be travelled in past.

- **G is the gravity of the planet**
- **M is the mass of the planet**
- **C is the speed of light**
- **θ is the angle of space time curvature**
- **V_f is the velocity of the force**
- **Vg is the velocity of the galaxy**
- **K is energy radiant. It is energy per angle**
- **E is the applied energy on the spacetime fabric**

Hypothetical Scenario

Curvature Creation

By concentrating a massive amount of energy and mass in a small region, the present space-time layer could be bent sharply.

Traveling Back in Time

The area of the space-time fabric where the curve is created would hypothetically move back to a previous time layer. This curvature would only affect the present space-time layer due to the mass's influence, leaving past layers unchanged.

Effects on Nearby Regions

Nearby regions of the space-time fabric might experience time dilation, where time runs slower relative to the unaffected areas.

Results and Discussion

Implications of the Hypothesis

This hypothesis suggests that, under certain conditions, it might be possible to travel back in time by creating a curvature in the space-time fabric. This concept challenges traditional views of time as a linear progression from past to future, proposing instead that all points in time coexist within a multi-layered structure.

Technological and Practical Considerations

Currently, this hypothesis remains purely theoretical due to technological limitations. Creating the necessary conditions to bend space-time requires advanced technology far beyond our current capabilities. Further advancements in physics and engineering are essential to test and validate this hypothesis.

Conclusion

The Theory of Space-Time Curvature presents a novel approach to understanding time travel, proposing that by manipulating the space-time fabric, it might be possible to move backward in

time. While this idea is currently impractical, it opens new avenues for theoretical exploration within the framework of Einstein's General Theory of Relativity. Continued research and technological advancements are necessary to develop a precise mathematical model and explore the practical applications of this hypothesis.

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For further inquiries or discussions related to this research, please feel free to contact us.

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Contributions

Javeria Ahmed: Conceptualized the theoretical framework, developed the core idea and methodology, and conducted preliminary research and analysis. Made contributions in developing the equation.

Wajahat Wazeer: Provided expertise in physics to refine and formalize the theory, contributed to the structuring and organization of the manuscript, and offered critical feedback and suggestions for improvement. Helped removing the defects as much as possible.