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Essay

# An Alternative and Simple View of the Universe

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**Abstract:** Over the past century, physics has evolved in a way that deviates from intuition and is extremely difficult for ordinary people to understand. Modern physics is primarily based on special and general relativity, as well as quantum mechanics. These two theories introduce several well-known counterintuitive concepts, such as the relativity of simultaneity, curved space-time, the probabilistic nature of particles, quantum entanglement, and the Big Bang. While these theories have practical applications, they are not easily comprehensible to the general public. In this paper, we propose an alternative and simplified perspective on the universe, hoping that readers will find it easier to understand and enjoy.

**Keywords:** special relativity; general relativity; quantum mechanics; universe; big bang; relativity of simultaneity; curved space-time; probabilistic nature; quantum entanglement; planck scale

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## Introduction

Over the past century, classical physics has evolved into modern physics with the introduction of special and general relativity [1] and quantum mechanics [2]. This evolution has created a significant gap in understanding between the physics community and the general public. While researchers in the field believe they have uncovered the fundamental secrets of the universe, the general public often struggles to grasp these concepts. As a result, many either disregard modern physics entirely due to its complexity or simply repeat well-known claims without fully understanding them.

When discussing modern physics with those who have encountered it through classrooms or online sources, you may notice that some enjoy referencing its most famous claims. These include ideas such as the multiverse, the relativity of time, the Big Bang, the twin paradox, and Schrödinger's cat. However, if you watch explanations of these topics by different physicists—such as those found on YouTube—you will find that while they all affirm the validity of these claims, their explanations often differ significantly. Essentially, there is no single, clear, and consistent explanation for many of these fundamental concepts [3].

In this paper, we present an alternative perspective on the universe, deliberately avoiding these well-known claims. This perspective is intuitive and straightforward, building upon a previous work [4]. Rather than relying on rigorous scientific reasoning or experimental validation, it is based on an intuitive understanding of the universe. Readers are encouraged to treat it as a hypothesis or a viewpoint rather than a definitive scientific theory.

## Relativity of Simultaneity and Curved Space-Time

The theory of special relativity assumes that the speed of light in a vacuum remains constant across different reference frames. Based on this assumption, the Lorentz transformation can be derived, showing that position and time vary between reference frames. In this way, special relativity eliminates the concept of a universal time frame and makes simultaneity relative. One well-known consequence of special relativity is the twin paradox: if twin brothers travel away from each other and later reunite, the theory predicts that the twin who remained stationary (brother A) will have aged more than the one who was in motion (brother B). However, if we assume that brother A was

moving and brother B remained stationary, then brother A should become younger than brother B. Physicists have proposed various complex explanations to resolve this apparent paradox [5].

The theory of general relativity introduces a four-dimensional space-time that curves around massive bodies [6]. This curvature causes light rays to bend around such bodies, explaining the well-known phenomenon of gravitational lensing.

The assumption of a constant speed is not a novel idea. In ancient times, people assumed constant speeds for activities such as army marches and boat sailing. Using this assumption, distances were often measured in units of time—for example, describing a day's march as covering approximately 15 km or the distance between two islands as a seven-day sail. However, when obstacles such as mountain ranges affected marching speed, these time-based distance measurements became inaccurate and caused distortions when mapped. Over time, people abandoned the idea of using time as a standard measure of distance in everyday life after understanding variations in speed.

The assumption of a constant light speed may be another instance of this historical pattern. If we abandon this assumption, we may gain a new perspective on space-time in a vacuum. In this alternative view, the vacuum is not empty but instead filled with pairs of positive and negative charges acting as a medium [7]. The density of this medium determines the properties of the vacuum. Near massive objects, the medium is denser, slowing the speed of light, which could explain the phenomenon of gravitational lensing.

When objects move through this medium, their properties may change with speed. For example, an object's length may contract when moving through the medium, similar to the Lorentz contraction in aether theory [8]. Additionally, light (as an electromagnetic process) inside the object must travel a longer distance through the medium, slowing all internal processes, including aging (i.e., clock ticking speed, not time itself). Under this view, the twin paradox is resolved: the twin traveling relative to the medium will experience slower aging and remain younger. This perspective—where medium density varies, light speed is not constant, and moving objects experience slower processes—is both simple and intuitive. Moreover, it preserves the universality of simultaneity and maintains an uncurved space-time.

### **Probabilistic Nature and Quantum Entanglement**

In quantum mechanics, several claims challenge our intuition. For example, the location of an electron within an atom is described probabilistically—it may exist in multiple locations simultaneously, and finding it at a specific location is only a matter of probability. Similarly, an electron's spin state can be in a superposition of both up and down states. However, once measured, its wave function collapses to either the up or down state. Additionally, two particles separated by a great distance can become entangled [9,10], meaning that measuring the state of one particle instantaneously influences the state of the other. Physicists have proposed numerous theories to explain these phenomena, often leading to different and counterintuitive interpretations. Some physicists have even abandoned the search for a deeper explanation, focusing instead solely on practical calculations [3].

Throughout human history, probability has often been used to describe unknown or unpredictable phenomena. For instance, early civilizations needed to predict the weather but lacked the tools to do so accurately. As a result, they treated weather patterns as probabilistic. However, with technological advancements, meteorology has become more deterministic, allowing for precise weather forecasts.

In ancient times, farmers feared predatory animals, such as tigers in mountainous regions. Without an effective tracking method, people relied on scattered sighting reports, assuming the tiger could be anywhere within a given area. The probability of encountering the tiger at a particular location was merely an estimate. Today, with tracking technology, we know that an animal's movement follows a deterministic trajectory, allowing us to predict its location with certainty.

Before the invention of the telegraph, messages were transmitted using fast horses or carrier pigeons. At the time, it seemed practically impossible to send information faster than a pigeon could travel. The idea of transmitting messages instantaneously across continents was inconceivable

outside of mythology. Today, we understand that information can travel at the speed of light, eliminating the limitations set by ancient methods of communication.

Drawing from these historical lessons, we can propose an alternative perspective on quantum mechanics. First, there may not be an upper limit on the speed at which information can be transmitted. Entangled particles might exchange information at speeds far greater than the speed of light. Additionally, the coexistence of multiple particle states may not be necessary—rather than existing in multiple states simultaneously, a particle's state may simply evolve over time. At any given moment, it possesses a single, well-defined state (e.g., either spin up or spin down). When one entangled particle is measured, the information is instantly transmitted to the other, causing its state to change accordingly. Furthermore, a particle may not exist simultaneously in multiple locations; with a sufficiently fast tracking mechanism, we could trace its precise trajectory from one position to another. Thus, nature may not be fundamentally probabilistic but instead inherently deterministic.

### **Planck Scale, Elementary Particles, and the Big Bang**

Modern physics often imposes limits on various aspects of the universe. For example, it asserts the existence of a measurable minimum scale for length and time, known as the Planck scale. According to this view, time intervals cannot be shorter than the Planck time, and lengths cannot be smaller than the Planck length [11]. Modern physics also claims that certain particles are elementary, meaning they contain no substructure or smaller constituent particles [12]. Additionally, it proposes that the universe has a definite starting point (the Big Bang) and a finite size following its expansion [13].

Looking back at human history, we see that people have always sought to define limits. For instance, ancient civilizations believed the world consisted of a single continent surrounded by an ocean and that the sky had only limited number of layers. They also assumed the world and humanity had a definite beginning. However, as observational tools advanced, people discovered multiple continents and a vast cosmos filled with distant stars and galaxies. Similarly, early thinkers once considered the atom to be the smallest unit of matter, yet we now know that atoms consist of protons, electrons, and neutrons. Throughout history, previously established limits have been repeatedly broken.

Given this historical pattern, it is reasonable to question the absolute validity of the limits set by modern physics. These limits may simply reflect the boundaries of our current technology and observational capabilities rather than fundamental truths. There are likely stars beyond the reach of our most powerful telescopes. The universe may have existed before its so-called "beginning." Even the smallest known particles may contain internal structures composed of even smaller entities. While no experiments have yet confirmed this perspective, it aligns with the broader wisdom of human history.

### **A New View of the Universe**

Our new view of the universe is simple. The universe is filled with matter, including both ordinary matter and dark matter. Ordinary matter consists of electrons, protons, neutrons, atoms, molecules, etc. Dark matter includes positive-negative charge pairs, which form the medium in a vacuum.

Matter interacts through electric force. Positive-positive interactions are repulsive, while positive-negative interactions are attractive. These interactions occur instantaneously (action at a distance) [15]. The strength of these interactions is determined by the charges within the matter and the surrounding medium. Due to the presence of this medium, charge interactions are further influenced by the charge amount, relative position, velocity, acceleration, and separation distance. Additionally, the medium's properties may cause interactions to appear as if they propagate at a finite speed [16]. Other forces, including magnetic, strong, weak, and mechanical forces, are simply macroscopic manifestations of electric interactions [17].

While interactions between two isolated bodies are instantaneous, a multi-body system can create undulatory effects, leading to wave propagation, such as light waves [18,19]. The speed of

these waves depends on the nature of wave motion and the degree of freedom available in the surrounding space. If no such freedom exists between two points, propagation will appear instantaneous (as in entanglement). An analogy would be a person walking through an empty hallway. Conversely, if there is abundant freedom for wave motion, the wave will propagate at a finite speed (such as light waves). This is akin to a person navigating through a crowded party room.

The universe can be described using universal time and spatial coordinates. Different reference frames can be used, following Galilean transformations. Space is filled with varying densities of matter and/or dark matter, which influence spatial properties such as permittivity and permeability. These variations also affect the speed of light and the rate at which clocks tick. In an inhomogeneous medium, such as a denser region around a massive object, light paths will bend. When objects move relative to the medium, their lengths change (without altering space itself), and internal processes slow down (e.g., decreased clock tick speed).

Under this new perspective, the major claims of modern physics—such as the relativity of simultaneity, curved space-time, the probabilistic nature of reality, and artificially imposed limits on speed, scale, age, and size—are no longer necessary.

## References

1. Einstein, A. (1905). Zur Elektrodynamik bewegter Körper. *Annalen der Physik*, 17, 891. English translation: Jeffery, G. B., & Perrett, W. (1923). *On the Electrodynamics of Moving Bodies*. Another English translation: Saha, M. N. (1920). *On the Electrodynamics of Moving Bodies*.
2. Weinberg, S. (2002). *Foundations: The quantum theory of fields (Vol. I)*. Cambridge University Press.
3. Carroll, S. (2025, February). Why even physicists still don't understand quantum theory 100 years on. *Nature*, 638(8049), 31-34. <https://doi.org/10.1038/d41586-025-00296-9>
4. Li, Q. (2019). Gossip of relativity and field theory with intrinsic velocity. *The General Science Journal*, 7824.
5. Jones, P., & Wanex, L. F. (2006). The clock paradox in a static homogeneous gravitational field. *Foundations of Physics Letters*, 19(1), 75–85.
6. Stavrov, I. (2020). *Curvature of space and time, with an introduction to geometric analysis*. American Mathematical Society.
7. Karbstein, F. (2020). Probing vacuum polarization effects with high-intensity lasers. *Particles*, 3(1), 39-61.
8. Lorentz, H. A. (1895). *Versuch einer Theorie der electrischen und optischen Erscheinungen in bewegten Körpern [Attempt of a theory of electrical and optical phenomena in moving bodies]*. E.J. Brill.
9. Yin, J., Cao, Y., Yong, H. L., Ren, J. G., Liang, H., Liao, S. K., Zhou, F., Liu, C., Wu, Y. P., Pan, G. S., Li, L., Liu, N. L., Zhang, Q., Peng, C. Z., & Pan, J. W. (2013). Bounding the speed of 'spooky action at a distance.' *Physical Review Letters*, 110(26), 260407.
10. Francis, M. (2012, October 30). Quantum entanglement shows that reality can't be local. *Ars Technica*.
11. Wilczek, F. (2005). On absolute units, I: Choices. *Physics Today*, 58(10), 12–13. <https://doi.org/10.1063/1.2138392>
12. Braibant, S., Giacomelli, G., & Spurio, M. (2012). *Particles and fundamental interactions: An introduction to particle physics (2nd ed.)*. Springer.
13. Singh, S. (2005). *Big bang: The origin of the universe*. Harper Perennial.
14. Assis, A. K. T., Neves, M. C. D., & Soares, D. S. L. (2009). Hubble's cosmology: From a finite expanding universe to a static endless universe. In F. Potter (Ed.), *2nd Crisis in Cosmology Conference, CCC-2* (pp. 255-267). *Astronomical Society of the Pacific*.
15. Hesse, M. B. (1955). Action at a distance in classical physics. *Isis*, 46(4), 337–353.
16. Li, Q., Smith, R. T., & Maher, S. (2024). Instantaneous action at a distance and the principle of locality: A new proposal about their possible connection. *Preprints*, 2024041741.
17. Assis, A. K. T. (2002). On the unification of forces of nature. *Annales de la Fondation Louis de Broglie*, 27, 149-161.
18. Li, Q., & Maher, S. (2023). Deriving an electric wave equation from Weber's electrodynamics. *Foundations*, 3(2), 323-334.
19. Li, Q. (2025). Transverse wave equation from Weber's electrodynamics. *Preprints*, 2025020649.

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