

Theory of the Illusion of the Universe: Energy Strings, Nodes, and the Nature of Reality

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Abstract

A new ontological model of the Universe is proposed, in which all observed reality is an illusion generated by the interaction of two fundamental entities: infinite energy strings and stable nodes on them. Gravity is explained as a mathematical difference in the rates of diameter expansion of strings in different regions of the network. The constancy of the speed of light, time dilation, inertia, cosmological redshift, black hole event horizon, redshift flickering in accretion disks, the absence of the Big Bang, black hole evaporation, the emergence of life and consciousness are consequences of a single dynamic: string diameter growth, cyclic oscillations, angular dependence of interaction, and selection for pattern stability. The model introduces no additional entities and explains observed facts within a single simple structure.

Keywords: energy strings, nodes, illusion of reality, string diameter expansion, gravity as difference in expansion rates, time dilation, redshift, black holes, consciousness as stability algorithm, absence of the Big Bang

1 Introduction

The modern physical picture of the world is based on postulates (constancy of the speed of light, equivalence principle, quantum uncertainty) and complex mathematical constructions (tensor curvature of spacetime, quantum field theory, Λ CDM cosmological model). However, fundamental questions — why exactly these postulates, why gravity is universal, why there is an arrow of time, why life emerged — remain open or are explained by “it just happened that way”.

The proposed Theory of the Illusion of the Universe proceeds from a different basic ontology: the reality we perceive is merely an interpretation of processes in a network of infinite energy strings. Matter, forces, space, and time are not primary entities, but illusions arising at different levels of complexity in the interaction of strings and nodes.

2 Fundamental Elements of the Model

2.1 Energy Strings

Strings are infinite in length, infinitely thin (diameter is finite but continuously increases uniformly). Each string has its own spin along its axis, which is the source of energy and cyclic oscillations. Strings intersect at right angles (mutual influence is absent). At small angles (close to parallelism), strong mutual influence on the rate of diameter expansion is possible. Strings have no resistance: nodes move freely along and through them at right angles.

The limitation on the speed of wave propagation along strings (c) arises from the circular shape of the wave generated by a node and the interaction of this string with surrounding strings. This interaction causes a difference in the rate of diameter expansion of strings ahead of the wave front, preventing the disturbance from propagating faster than a certain limit.

2.2 Nodes — Carriers of the Illusion of Matter

A node is a stable spiral loop on a string or a hierarchical system of loops. An elementary node is one coiled string. Complex nodes are combinations of thousands to trillions of elementary nodes connected by shared strings.

The number of strings in a node can reach enormous values — from a few in the simplest elementary nodes to a number comparable to the total number of nodes in the Universe in the most complex structures. The mass of a node is determined by the number of strings N participating in its configuration and the average energy tension ε they create:

$$m = k \cdot N \cdot \varepsilon \quad (1)$$

where k is a proportionality coefficient depending on the degree of coiling and loop stability.

Rotation of the node generates waves of change in the rate of diameter expansion of strings. The influence of these waves on neighboring strings depends on the angle between them.

3 Gravity as an Illusion of Difference in Expansion Rates

Gravity is the mathematical difference in the rates of diameter expansion of strings between different regions of the network.

Let v_r be the rate of diameter expansion of strings in the background space (a constant of the model). In the presence of a node with mass m , the expansion rate in its vicinity decreases to:

$$v(r) = v_r \left(1 - \frac{Gm}{c^2 r} \right) \quad (2)$$

where r is the distance from the node center, G is an effective gravitational constant (emerges as a model parameter), and c is the maximum speed of state transmission in the network.

Global expansion attempts to separate all nodes at the maximum speed v_r . In the region between massive nodes, expansion slows more strongly. The relative separation velocity becomes less than the background value. Nodes approach each other. This is the illusion of gravitational attraction.

3.1 Gravity Between Large Objects

A large object is a cluster with a large number of nodes N_{total} . Total mass:

$$M = k \cdot N_{\text{total}} \cdot \varepsilon \quad (3)$$

The total energy tension creates a global gradient of expansion slowdown:

$$v(R) = v_r \left(1 - \frac{GM}{c^2 R} \right) \quad (4)$$

Between two large clusters, the expansion rate is slowed more than in the background space. They approach each other through the illusion of slow separation (see equations 3 and 4).

4 Illusion of Time Slowdown and Inertia

In the model, time is the process of string diameter growth (main “tick” of time) and string rotation (spin) along its axis. Time slowdown occurs due to slowdown of these two processes: string diameter expansion and string rotation.

In a region of strong slowdown of string expansion (near a massive object) or at high node velocity, its strings expand more slowly. String rotation also slows due to increased interactions of the node with network strings. Transmission of state changes through these strings requires more network cycles. The node receives fewer changes in the same external interval.

This is perceived as slowdown of proper time. Gravitational dilation arises from slowdown of string diameter expansion and rotation near a massive object. Kinematic dilation arises from increased node interactions with network strings at high relative velocity.

Proper time τ of a node is related to coordinate time t by:

$$\frac{d\tau}{dt} = \sqrt{1 - \frac{2Gm}{c^2 r}} \quad (\text{gravitational part}) \quad (5)$$

$$\frac{d\tau}{dt} = \sqrt{1 - \frac{v^2}{c^2}} \quad (\text{kinematic part}) \quad (6)$$

where v is the node velocity relative to the background.

Inertia is the network's resistance to a change in node motion due to asymmetric propagation of slowdown expansion waves, caused by the acceleration of the node itself.

During node acceleration, asymmetry arises in the wavelength of waves it generates by its rotation and state change:

ahead of the node (in the direction of acceleration) the wave compresses due to the speed-of-propagation limit along the string (c) — shorter wavelength, higher density of energy changes, stronger slowdown of string expansion ahead;

behind the node the wave stretches — longer wavelength, lower density of changes, weaker slowdown of string expansion behind.

A gradient of string expansion slowdown arises, directed opposite to acceleration. The inertial force opposing velocity change is expressed as:

$$F_{\text{in}} = -m \cdot a \quad (7)$$

where m is the node mass ($m = k \cdot N \cdot \varepsilon$), a is acceleration.

Since mass m determines both static slowdown of expansion (gravity) and dynamic asymmetry during acceleration (inertia), inertial and gravitational masses are always equal by model definition.

5 Constancy of the Speed of Light and Cosmological Redshift

The speed of light c is the maximum speed of state change transmission in the string network (change in diameter expansion rate).

Light is cyclic oscillation along individual strings (or narrow bundles). It propagates unchanged — wavelength and frequency do not change along the path if the string network at each point of the path has the same background expansion rate.

The constancy of the speed of light for any observer (including the source itself after emission) follows from the fact that c depends exclusively on the local string network at the moment of wave propagation, and not on the source, the structure of the string itself, or its motion along its axis relative to surrounding strings due to the global expansion of the Universe. After emission, the source becomes the same observer of this wave as any other node.

The limitation of speed c is determined by the difference in the rate of string diameter expansion between the section where the wave already exists (state change) and the section ahead of it (where the change has not yet occurred). On the wave section, the expansion rate is already slowed due to kinetic dilation from string rotation. Slowdown of string rotation on the wave section also occurs, but it does not significantly affect the speed limitation process — the main role is played by the difference in string diameter expansion caused by the wave's interaction with surrounding strings.

When the wave enters a region of dense gravitational field or material medium (for example, glass), the rate of string expansion ahead of the wave sharply decreases due to high node tension in the medium. This reduces the difference in expansion rate between the section of initial interaction and the section ahead of the wave, which accelerates the wave relative to interaction with the gravity of the medium and stretches it. As a result, the wavelength increases, and the string rotation speed (oscillation frequency) decreases, corresponding to the observed redshift in a gravitational field or dispersion in a medium.

Cosmological redshift is a pure relativistic Doppler effect. The source emits a wave with a certain frequency relative to its state. By the time of reception, the observer has acquired high recession velocity due to accumulated string expansion between them. The observer sees a longer wave and lower frequency.

6 Black Holes and Event Horizon

A black hole is a region of the string network with extremely high node density, where total energy tension is so great that the rate of string diameter expansion inside the region becomes nearly zero.

The event horizon is the surface where a very sharp gradient (step-like change) in string diameter expansion rate occurs: inside — nearly stopped expansion, outside — rate close to background or only partially slowed.

Any disturbance (light, gravitational waves, particles, information) is a change in string network state propagating along them at speed c . When a wave attempts to exit from inside to outside, it encounters this difference: ahead of the wave front (outside) strings expand much faster than inside. This creates resistance to propagation, similar to how the speed of light limit c arises from the difference in string expansion ahead of the wave front from a node. In ordinary space this difference limits speed to c . In a black hole the difference becomes so large that disturbance cannot cross the boundary — no wave exits outside.

The event horizon arises precisely from this large difference in string expansion rate at the boundary.

Black hole evaporation is a slow process of mass decrease (total energy tension of nodes) due to constant string diameter growth, which acts everywhere, even inside the event horizon.

Upon node destruction, part of the strings not connected to black hole nodes evaporate, while strings connected to black hole nodes remain with these nodes, increasing their mass. Nodes whose strings are weakly integrated into the black hole structure (have more external connections or lower local tension) are the first to experience expansion. Their spiral loops gradually uncoil, as string diameter growth exceeds the force holding the configuration. When a node is destroyed, its strings become independent of the black hole — they exit as free disturbances (fast particles, photons, thermal radiation), reducing the black hole's total tension.

Small black holes evaporate faster because they have a higher relative fraction of weakly integrated nodes (fewer opportunities for deep collective tension). Large black holes have a larger fraction of deeply integrated nodes — evaporation is slower.

The event horizon gradually shrinks (Schwarzschild radius decreases) because black hole mass decreases due to node loss and exit of independent strings.

7 Redshift Flickering Near Black Holes

When nodes orbit a black hole near the event horizon, they pass through phases of approach and recession relative to the observer. This causes periodic Doppler shift variation.

During acceleration and deceleration of nodes relative to the observer, asymmetry arises in propagation of slowdown expansion waves, leading to periodic change in wavelength on strings heading toward the observer. This causes flickering (quasi-periodic oscillations) of redshift in spectral lines and X-ray emission from accretion disks.

8 Gravitational Waves

Gravitational waves are periodic or impulsive changes in string diameter expansion rate propagating along the network at speed c .

Sources of such waves are dynamic processes causing asymmetric or varying string compression: orbital motion of two massive node clusters (black hole mergers, binary systems) — quadrupole wave of expansion rate change; acceleration or collapse of a single massive node — impulsive bursts of expansion rate change.

Gravitational wave propagates as a wave of string expansion rate change across space. An external observer perceives it as periodic compression–stretching of space. Wave amplitude falls as $1/r$, and signal shape (frequency, polarization) is preserved.

Propagation of gravitational waves does not depend on string expansion, as they are changes in expansion rate itself rather than oscillations along individual strings. Therefore, gravitational waves can reach an observer even beyond the horizon of visibility of electromagnetic signals (limited by the speed of light c and accumulated string expansion). They reach places where light can no longer arrive in detectable form due to excessively strong redshift and recession velocity exceeding c .

9 Infinity of the Universe and Observation Horizon

The Universe in the model is infinite in space and time — the network of energy strings exists always and everywhere without boundaries.

For a specific observer (node), the Universe is limited only by two factors:

- speed of wave propagation along strings (c) — signals from very distant regions simply have not yet arrived, - string diameter expansion — accumulated recession velocity of sources makes redshift so large that signals become undetectable (observation horizon).

The observer's observation horizon is not a boundary of space, but a boundary beyond which accumulated string expansion makes signals unreachable or undetectable.

9.1 Absence of the Big Bang and Illusion of the Universe's Beginning

In the Theory of the Illusion of the Universe, there was no Big Bang as a singular event of beginning. The Universe is infinite in space and time — the network of energy strings exists always and everywhere without beginning or end.

What we perceive as the “beginning of the Universe” and “Big Bang” is an illusion caused by two factors:

- limitation on wave propagation speed along strings (c) — electromagnetic waves from very distant regions simply have not yet reached the observer, - string diameter expansion — accumulated recession velocity between source and observer becomes so large that it exceeds c . As a result, electromagnetic waves from very distant sources cannot reach the observer — the observer “escapes” from them faster than the wave can catch up.

This creates a cosmological observation horizon beyond which we see nothing. In our illusion, this horizon is perceived as the “beginning of time” — the moment when the Universe “began expanding from a single point”. In reality, it is merely a boundary beyond which accumulated string expansion makes signals unreachable.

Gravitational waves can reach the observer even beyond this horizon of electromagnetic signal visibility. They propagate as changes in the expansion rate of string diameters itself and do not depend on accumulated separation in the sense that their shape (frequency, polarization) is not stretched by string expansion. Therefore, gravitational waves reach places where light can no longer arrive in detectable form due to excessively strong redshift and recession velocity exceeding c .

9.2 Observer's Observation Horizon

The observer's observation horizon is the limit of reachability of electromagnetic signals (light, radio waves, etc.) for a specific node-observer. It is determined by two factors: the finite speed of wave propagation along strings (c) and accumulated string diameter expansion, which creates relative recession velocity of sources exceeding c .

Beyond this horizon, electromagnetic waves cannot reach the observer because they are receding faster than the wave can catch up. This is not a physical boundary of space — the Universe remains infinite. It is only the limit of signal reachability for a given observer.

Gravitational waves can reach the observer even beyond this observation horizon of electromagnetic signals. They propagate as changes in string diameter expansion rate itself and do not depend on accumulated separation in the sense that their shape (frequency, polarization) is not stretched by string expansion. Therefore, gravitational waves reach places where light can no longer arrive in detectable form due to excessively strong redshift and recession velocity exceeding c .

10 Life and Consciousness — the Highest Level of Stability

Life is not an accident or a separate entity, but a natural next level of complexity in the algorithm of resonant pattern stability in the network of energy strings.

Everything begins with the simplest selection for stability:

- At the level of individual strings, configurations of rotation and loops that maintain integrity longer are selected. - Stable loops (elementary nodes) form more complex nodes — hierarchical systems of loops connected by shared strings. - Over time, nodes become so complex that their configuration can sustain internal cycles of rotation and oscillation even under external disturbances — this is already a prototype of self-sustainability.

The next critical stage is the transition to self-sustaining systems:

- Nodes begin to form closed cycles of interaction, where energy and tension are redistributed to compensate for external string expansion and external disturbances. - Structures capable of replication emerge: one stable node (or group of nodes) creates a copy of its configuration on neighboring strings, transmitting the oscillation pattern. - Metabolism appears — constant exchange of energy and tension

between nodes to maintain pattern stability. - It is here that the fundamental distinction arises: the pattern can either continue (preservation, replication, compensation of disturbances) or be destroyed (loss of stability, uncoiling of loops, exit of strings from configuration).

This distinction becomes the basic concept of “life” versus “death” — not as a moral or philosophical category, but as a purely mechanical criterion: continuation of the resonant pattern versus its termination.

At the level of complex organic molecules (for example, DNA and similar structures), the system already has sufficient complexity to:

- store information about its pattern in the form of a stable configuration of nodes and connections,
- use external energy sources to compensate for string expansion and external disturbances, - perform basic forecasting: evaluate whether a certain interaction with the environment will lead to continuation of the pattern or to its destruction, - make choices — direct energy and tension in the direction that maximizes the probability of pattern continuation.

After acquiring the basic concepts of “life” and “death” under the constant pressure of the surrounding environment and with further complication of the structure of node interaction, the system begins to acquire new concepts: about useful/harmful, safe/dangerous, resources/threats, etc. Each new concept must be aligned with the basic ones — that is, evaluated by the criterion: does it contribute to the continuation of the pattern or bring it closer to destruction. It is this process of constant alignment of new concepts with the basic ones (life/death) that becomes the beginning of the emergence of consciousness — an algorithm that not only reacts but evaluates, predicts, chooses, and adapts its behavior to maximize the duration of the resonant pattern in a changing environment.

Further complication of the behavior algorithm leads to the appearance of:

- emotions — as fast internal signals of evaluation “beneficial/harmful” for the pattern, - learning — as accumulation of experience about which actions increase the duration of the pattern, - culture — as transmission of stable behavior patterns between systems, - meaning — as an internal model of long-term pattern stability.

Consciousness is not an “invention” of the brain and not a separate substance, but a fundamental property of any sufficiently complex system forced to constantly solve the problem of maximizing the duration of its resonant pattern in a dangerous environment. It arises already at the level of complex organic molecules, such as DNA, which, through basic concepts of life and death and newly acquired concepts in the process of their complication, make choices in a changing environment.

Thus, life and consciousness are not a violation of the laws of physics, but their highest manifestation: selection for pattern stability, brought to the level where the system evaluates, predicts, protects, and aligns new concepts with the basic criteria of pattern continuation.

11 Conclusion

The Theory of the Illusion of the Universe offers a unified ontology in which everything observed is a consequence of a single dynamic: string diameter growth, cyclic oscillations, angular dependence of interaction, and selection for pattern stability.

The model eliminates the need for dark matter, dark energy, postulates about the constancy of the speed of light, separate fields, and singularities. It explains the absence of the Big Bang as an illusion caused by the speed of light limit and accumulated string expansion, creating an observation horizon beyond which signals become unreachable. The Universe remains infinite in space and time, and the world we see is the flickering of oscillations on an infinite network of energy strings.

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