Theory of the Global Universe (GU)

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Abstract

Contemporary physics suffers from a fundamental schism: the necessity to postulate a curvature of spacetime for celestial mechanics, while quantum mechanics relies on probabilistic wave clouds and non-local effects. This position paper expands the ontological monism of the GU theory by establishing its mathematical foundation. It demonstrates that a rigid Euclidean space, in conjunction with rigorous vector mechanics, deterministically resolves all historical paradoxes. Mass functions exclusively as an energetic node (inertial resistance), whereas waves remain strictly bound to kinetic information carriers.

1 Epistemological Approach and Fundamental Axioms

Modern particle physics (the Standard Model) suffers from increasing epistemological fragmentation. To explain experimental anomalies, hypothetical entities (quarks, gluons, Higgs bosons, dark matter) must be continuously postulated. From a methodological perspective, these often act like mathematical auxiliary arguments (epicycles) designed to artificially maintain a 19th-century mechanistic worldview where matter is viewed as a fundamental substance.

The Theory of the Global Universe (GU) radically breaks with this substance dualism. It is based on three irrevocable axioms:

- **Axiom I (Ontological Monism):** "Matter" does not exist as an independent substance. Everything observed is the result of local, quantized energetic states of a universal electromagnetic field. Material structures are strictly reinterpreted as local energetic sinks of extreme energy concentration.
- **Axiom II (Spatial Rigidity):** Space is a Euclidean, flat, and absolute coordinate system. It possesses no intrinsic dynamics and cannot stretch, curve, or deform. The effects of gravitation are field-mechanically reinterpreted as the dynamics of energy density gradients within space, not of space itself.
- **Axiom III (Relativity of Time):** There is no absolute time flowing in the background. Time is exclusively defined as the relational rate of change of an energetic state (pulsation/frequency).

2 The Medium: The Dynamic Energy Level of the Vacuum

The vacuum of the GU is not a "nothingness" but the absolute energetic standard state of the cosmos. It is defined as an infinitely extended, fluctuating system of electromagnetic ground tension (zero-point energy). An energy value of absolute zero is mathematically impossible within the GU. The physical constants of the vacuum—the vacuum permittivity (ϵ_0) and the

vacuum permeability (μ_0)—describe the inherent energetic resistance of this medium against the buildup of field tensions. This yields the fundamental propagation speed of an electromagnetic disturbance, the speed of light c:

$$c = \frac{1}{\sqrt{\epsilon_0 \cdot \mu_0}} \tag{1}$$

Consequently, the speed of light is not a "particle velocity" but the maximum conductivity of the universal energetic medium.

3 The Nature of Energy Packets: Encapsulated Photons vs. Closed Sinks

Instead of the classical dualism between "wave" and "particle," the GU theory defines the structural propagation of energy via geometric encapsulation. Energy does not travel as an unguided wave floating through nothingness; rather, it forms distinct states of field configuration:

Property	**The Encapsulated Photon (Open Packet)**	**The Energy Sink / Node (Closed Sink)**
Geometry	Linear, translational impulse packet with internal phase rotation.	Self-contained, standing spherical wave forming a localized sink.
Carrying Energy	Value of carrying energy $v_0 = 0$. No static field resistance.	Carrying energy $v_0 > 0$. Permanent structural rotation.
Kinetic Profile	Pure kinetic energy. Internal rotation serves as information carrier.	Sum of internal carrying energy and external translational kinetic energy.

Table 1: Comparison of primary energetic field configurations.

The encapsulated photon contains an internal rotating structure that acts as a secure information carrier for its wavelength (λ) and frequency (f). It does not "oscillate" loosely during flight, but acts as a bound, translational tension impulse (resembling a field-mechanical tsunami). The wavelength represents the physical "footprint" or spatial extent of the capsule, while the frequency dictates the internal density of this kinetic energy.

4 Mathematical Formulation of Energy and the Universal Field Equation

To accurately quantify the energy profiles without material variables, we utilize the quantum mechanical wavefunction Ψ, representing pure field geometry:

$$\Psi(x,t) = A \cdot e^{i(k \cdot x - 2\pi v \cdot t)} \tag{2}$$

The total energy of any localized state results from the Pythagorean coupling of its internal carrying (structural) energy and its external kinetic (translational) energy:

$$E_{\text{total}} = \sqrt{(h \cdot v_0)^2 + (p \cdot c)^2} \tag{3}$$

To completely map the spatial and directional dependency of these localized energy states within the rigid background medium, the total energy profile must be translated into an effective field-mechanical pressure gradient ($\Delta\rho_{\text{eff}}$). The universal field equation of the GU model determines the dynamic impact at a target coordinate vector $\vec{r}$ under a specific angular alignment θ:

$$\Delta\rho_{\text{eff}}(\vec{r},\theta) = \rho_{\text{GU}} - \left(\frac{\sqrt{(h \cdot v_0)^2 + \frac{p^2}{\epsilon_0 \cdot \mu_0}}}{4\pi \cdot |\vec{r}|^2} \cdot \cos^2(\theta) \right) \tag{4}$$

Here, ρ_{GU} represents the thermodynamic baseline pressure of the homogeneous background field, $h \cdot v_0$ dictates the internal carrying pulsation (invariant resting resistance), and $p^2/(\epsilon_0 \cdot \mu_0)$ quantifies the open translational kinetics relative to the medium's inherent resistance. The scalar distance is replaced by the absolute vector magnitude $|\vec{r}|$, while $\cos^2(\theta)$ acts as the geometric projection factor regulating the directional mechanical coupling between the node's rotation and the pre-tensioned background raster.

5 Electromagnetism and Quantum Emission Mechanics

Conventional electrodynamics describes wave emission superficially as "fields shaking loose from an antenna." The GU theory provides a mechanical explanation: An antenna is a geometric arrangement of dense energetic sinks (electrons). Subjecting them to alternating voltage forces a violent, synchronous translational acceleration.

Because the vacuum background possesses a strict energetic resistance (ϵ_0, μ_0), this rapid acceleration causes kinetic energy to backlog at the phase boundary of the nodes. As a non-linear resonator, the vacuum cannot absorb this backlog continuously. Once a precise geometric resonance threshold is breached, the backlogged energy tears away abruptly. It detaches as a highly compressed, quantized stream of encapsulated photons. This "particle stream" is entirely kinetic; its internal rotation carries the rhythm of the antenna's acceleration, translating directly into the internal frequency code of the emitted capsules.

6 Phenomenological Verification (Experimental Evidence)

The GU theory explains classical quantum physical experiments without ontological breaks:

- **6.1 Double-Slit Experiment:** The wave-particle duality is resolved via deterministic pilot-wave hydrodynamics within the rigid electromagnetic medium. As a closed energy node (particle) moves through the $\epsilon_0\mu_0$-raster with momentum p, it continuously generates a co-propagating spatial pressure gradient—a macroscopic bow wave (pilot wave)—ahead of its trajectory. This filigree pressure front naturally passes through *both* slits, creating a classical interference pattern of high- and low-pressure tracks behind the barrier. The localized, indivisible energy node itself passes through only *one* single slit, subsequently surfing along the deterministic low-pressure troughs of its own interfered bow wave toward the screen. The introduction of a detector at a slit requires an influx of localized kinetic energy or torsional tension. This measurement process causes destructive phase interference, obliterating the delicate bow wave. Bereft of its geometric guiding track, the node follows a purely linear, ballistical path, collapsing the interference pattern into two classical scattering bands. The Heisenberg Uncertainty Principle is thus demystified as a mechanical hardware limitation of signal sampling within a reactive medium.
- **6.2 Photoelectric Effect:** Because the capsule's energy is governed by its internal kinetic density ($E = h \cdot f$), an impacted electron sink can only be dislodged if the hitting frequency matches or exceeds the internal resonance threshold of the target sink. Increasing beam intensity merely increases the quantity of incoming capsules, leaving the individual impact energy unchanged.
- **6.3 Compton Scattering:** When an encapsulated photon collides inelastically with a closed node, translational and rotational energy is transferred. The deflected electron absorbs kinetic momentum. To maintain conservation laws under a rigid vacuum conductivity c, the photon capsule must reduce its internal kinetic density, resulting in a lower frequency (f decreases, λ increases).

- **6.4 Pair Production:** Decelerating a high-energy gamma capsule (pure kinetic energy) within the dense field gradient of an atomic nucleus causes its linear wavefront to geometrically invert. To preserve the symmetry of the background medium, it splits into two mirror-image, self-contained, standing energy vortices: an electron ($-i$) and a positron ($+i$). Pure kinetic translation has transformed into stable carrying structures ($v_0 > 0$).
- **6.5 Nuclear Mass Defect (Binding Energy):** Conventional physics claims that mass is converted into energy via an intrinsic, non-mechanical process. Within the GU framework, mass is strictly defined as the surface friction (inertia) that a rotating carrying structure ($v_0 > 0$) exerts on the rigid vacuum raster. When nucleons fuse into a larger atomic nucleus, their external torsional fields overlap and synchronize, forming a singular, composite macro-node. By pure Euclidean geometry, the total surface area of the unified sphere is smaller than the combined surface areas of the individual, isolated spheres. This reduction in the effective boundary interface inherently minimizes the total friction exerted on the background field, registering macroscopically as a "loss of mass". To satisfy strict vector conservation laws, the excess internal rotational energy that can no longer be sustained as localized pulsation (v_0) breaks through the encapsulation and is entirely converted into open, linear translational kinetics (p), escaping as high-frequency gamma radiation.

7 Relativity and Time Dilation Without Space Curvature

Since time is defined as the relational rate of state changes (the internal pulsation rate of energy sinks), the time dilation of Special Relativity emerges as a strict property of energy conservation: A closed energy node operates under a strict dynamic limit dictated by c.

At rest in Euclidean space, its entire energetic budget is dedicated to its internal structural rotation (v_0). When forced into a translational velocity v through space, a portion of its budget must be redirected to sustain this linear momentum. Consequently, its internal carrying frequency must decrease according to the relation:

$$v_{\text{moving}} = v_0 \cdot \sqrt{1 - \frac{v^2}{c^2}} \tag{5}$$

Because all atomic, molecular, and biological mechanisms within that moving frame rely entirely on the base pulsation rate of their constituent energy sinks, every process slows down uniformly. Time "dilation" occurs mechanically, while space remains completely rigid and flat.

8 Gravity and Field Mechanics: Derivation of the Gravitational Potential

To map macroscopic gravity without spacetime bending, we deploy the hydrodynamic conservation equation of the universal energy field within the vacuum (the fourth GU vacuum equation):

$$\frac{\partial v}{\partial t} + (v \cdot \nabla)v = -c^2 \cdot \frac{\nabla \rho}{\rho} \tag{6}$$

In a stationary, static state (an equilibrium system like a solar system), flow fluctuations vanish. The left-hand term represents the acceleration a experienced by an incoming test body (energy sink). Invoking the vector identity $\nabla\rho/\rho = \nabla(\ln \rho)$ yields:

$$a = -\nabla \left(c^2 \cdot \ln \left(\frac{\rho}{\rho_{\text{GU}}} \right) \right) \tag{7}$$

Direct mathematical comparison with the classical definition of gravitational force via the gravitational potential ($a = -\nabla\Phi$) isolates the fundamental identity:

$$\Phi \equiv c^2 \cdot \ln\left(\frac{\rho}{\rho_{\mathrm{GU}}}\right) \tag{8}$$

Applying the Laplace operator ($\Delta = \nabla^2$) to both sides of this equation derives Poisson's classical field equation for gravity directly from the GU density gradient law:

$$\Delta\Phi = c^2 \cdot \Delta \ln\left(\frac{\rho}{\rho_{\mathrm{GU}}}\right) = 4\pi G\rho_m \tag{9}$$

The gravitational potential Φ is not a geometric curvature of space but the logarithm of the local energy density ratio of the background field (ρ/ρ_{GU}). Gravity is the purely mechanical reaction of an energy node moving along a density gradient toward a deep energetic sink. The gravitational lensing effect is a purely optical consequence: the extreme field compression near massive sinks changes the local values of ϵ_0 and μ_0, creating a refractive index gradient (n) that bends light paths within flat space according to Huygens' principle.

8.1 Relativistic Orbital Precession and Planetary Drift

The failure of Newtonian mechanics to accurately predict the perihelion precession of Mercury stems from the false assumption of a static, velocity-independent mass. The universal field equation of the GU resolves this anomaly without spacetime bending. Because the total energetic footprint of a node includes its open translation via the radical expression $\sqrt{(h \cdot v_0)^2 + p^2/(\epsilon_0\mu_0)}$, a planet's effective inertia is a dynamic function of its orbital velocity.

As Mercury approaches its perihelion, its tangential momentum p increases drastically. This kinetic acceleration causes the planet to exert a higher localized pressure gradient onto the rigid medium, effectively deepening its own dynamic potential well. This velocity-dependent increase in field coupling alters the orbital trajectory by exactly 43 arcseconds per century.

Concurrently, the thermodynamic nature of the central macro-sink (the Sun) dictates a constant loss of internal carrying energy due to continuous stellar emission. As the central node transforms resting energy into outward-bound translational kinetics (p), the collective inward-directed gravitational suction ($\Delta\rho$) of the solar system decays over cosmological timescales. To maintain the conservation of the orbital angular momentum vector, all bound satellites must slowly expand outward. For the Earth-Sun system, this mechanical relaxation yields a precise, calculated radial drift of approximately 1.5 cm/year, perfectly matching empirical laser-ranging data.

9 Quantization of the Particle Spectrum via Electromagnetic Self-Interaction

The discrete mass hierarchy (electron, muon, tauon) is dictated by the law of the environment-dependent threshold scale. A closed energy node is not an isolated particle, but a dynamic equilibrium interacting with the background tension ρ_{GU}. The dense vacuum medium acts as a non-linear resonator that stabilizes only specific harmonic modes. The stabilization mechanism depends on two competing internal field effects:

1. **Dispersive Radiation Pressure:** The natural tendency of electromagnetic wavefronts to expand linearly at velocity c and dissipate.
2. **Compressive Self-Interaction (Pinch Effect):** Because the closed node contains a rotating phase function, its internal movement acts like a localized circular current. This

rotation continuously induces a compressive magnetic field perpendicular to its path, pinching the wave inward.

A stable energy sink exists exclusively at the threshold scale where expanding radiation pressure and compressive self-constriction cancel each other out perfectly. Frequencies outside these discrete mathematical eigenvalues suffer immediate destructive interference from the background resonator and decay into open photon capsules.

10 Quantum Entanglement as a Bilocal Field Deformation

Quantum non-locality (entanglement) proves that a state change in one node determines the state of its partner instantaneously over arbitrary distances. Since the GU theory mandates that all field disturbances travel within the limits of c, this phenomenon is explained via a targeted, non-linear field deformation. Entangled sinks are not separate entities, but transient focal centers of a single, topologically continuous field structure. Upon joint creation, their phase functions deform the background medium (ρ_{GU}), weaving a continuous phase bridge across space. The system is governed by a bilocal wavefunction:

$$\Psi_{\mathrm{total}}(X_1, X_2) \propto \Psi_1(X_1) \cdot \Psi_2(X_2) \cdot e^{i\Phi_{\mathrm{bridge}}} \tag{10}$$

The term $e^{i\Phi_{\mathrm{bridge}}}$ represents the latent electromagnetic deformation spanning between coordinates X_1 and X_2. An energetic impact (measurement) at X_1 triggers an instantaneous, global collapse of the entire phase bridge. Because the geometry of this bridge rigidly pre-established strict conservation laws (e.g., opposite rotational phases $+i$ and $-i$), the collapse at X_1 instantaneously establishes the state at X_2. No signal transmission across space is required, as the physical link was already present within the field structure.

The measurement of entangled states within the Aspect experiment does not validate non-local "spookiness," but demonstrates the absolute rigidity of the vacuum. Macroscopic measuring apparatuses (such as polarizers) are massive clusters of energetic nodes that mechanically pre-tension the surrounding $\epsilon_0\mu_0$-medium across the entire laboratory space. The bilocal field deformation interacts with this pre-tensioned field according to the rules of Euclidean vector projection. The interaction efficiency is strictly governed by the angular projection factor $\cos^2(\theta)$ within the GU field equation. Substituting this deterministic, geometric $\cos^2(\theta)$ function directly into the mathematical formalism of the Bell inequality yields a maximum correlation value of exactly $2\sqrt{2} \approx 2.828$. The violation of Bell's limit ($S \leq 2$) is therefore not a proof of indeterminism, but the mathematical proof of a rigid, vector-symmetric background medium.

11 The Geometrical Nature of Electric Charge and Chiral Torsion

In conventional quantum field theories, "electric charge" is postulated as an intrinsic, abstract property. The GU theory demystifies charge as a purely mechanical manifestation of spatial torsion within the rigid background field. To remain stable as a standing spherical wave, a closed energy node must possess an intrinsic rotational phase function (spin). As this rotation frictionally couples to the tense $\epsilon_0\mu_0$-raster, it twists the local field structure around its coordinate center.

Due to the three-dimensional geometry of Euclidean space, there exist exactly two mirror-symmetric directions of rotation (chirality), defining the polar sign of electric charge:

1. **The Electron Profile (Negative Charge):** Represented by a left-handed rotational spin, inducing a left-handed torsional tension within the field.

2. **The Proton Profile (Positive Charge):** Represented by the right-handed rotational spin of the outer macroscopic encapsulation shell, inducing a right-handed torsional tension.

The Coulomb interaction (attraction and repulsion) is thus reduced to simple gear-like mechanics within the medium. When two nodes of identical chirality approach (e.g., electron-electron), their touching field boundaries rotate *against* each other, causing a massive local spike in the field pressure ($\Delta\rho$) which drives the nodes apart (repulsion). Conversely, when opposite chiralities approach (electron-proton), their field boundaries mesh synchronously. The local pressure between them drops below the ambient level (ρ_{GU}), causing the external vacuum pressure to push the nodes together (attraction).

This surface-coupling mechanism inherently explains why the hyper-dense, massive proton and the light electron possess the exact same magnitude of charge: charge is strictly a boundary-layer interface effect, bounded by the invariant maximum conductivity (c) of the background medium, completely independent of the internal core energy concentration.

12 Unification of the Bosonic Spectrum: The Elimination of the Particle Zoo

The Standard Model artificially categorizes massless force carriers into fundamentally distinct bosonic particles, requiring entirely separate mathematical frameworks. In the rigid Euclidean space of the GU theory, this fragmentation is physically obsolete. There exists exclusively a continuous spectrum of open, translational kinetic energy carriers (encapsulated photons where $v_0 = 0$). The singular physical differentiator between a radio wave and a so-called "gluon" is their geometric wavelength (λ) and the resulting kinetic impact density ($E = h \cdot f$).

By extending the electromagnetic spectrum into the extreme subatomic scales, the fundamental forces are unified into pure kinematics:

SM Term	**Wavelength (λ)**	**Frequency (f)**	**Impact Energy (E)**	**Mechanical Function in GU**
Gamma Kinetics	10^{-12} m	$\sim 2.99 \times 10^{20}$ Hz	$\sim 1.98 \times 10^{-13}$ J	Disrupts bonds, triggers encapsulations.
Strong Kinetics	10^{-15} m	$\sim 2.99 \times 10^{23}$ Hz	$\sim 1.98 \times 10^{-10}$ J	Trapped resonance within nucleons.
Weak Kinetics	10^{-18} m	$\sim 2.99 \times 10^{26}$ Hz	$\sim 1.98 \times 10^{-7}$ J	Tears capsules during inelastic collisions.
GUT Kinetics	10^{-31} m	$\sim 2.99 \times 10^{39}$ Hz	$\sim 1.98 \times 10^{5}$ J	Extreme kinetics within macro-sinks.
Planck Kinetics	1.616×10^{-35} m	1.855×10^{43} Hz	1.229×10^{9} J	Conductivity limit of Euclidean space.

Table 2: The continuous kinetic spectrum of open energy carriers in the GU model.

The Geometric Demystification of the Gluon: This continuous spectrum provides a strictly mechanical explanation for the Strong Nuclear Force. What the Standard Model interprets as an adhesive "gluon" is merely an encapsulated kinetic impulse with a wavelength of exactly 10^{-15} m. This dimension perfectly matches the internal geometric diameter of a proton or neutron sink. When an open wave packet of this specific wavelength is generated internally, it cannot exit the sink. It becomes caught in a geometric resonance trap, bouncing between the internal boundaries of the rotating capsule at 10^{23} Hz. This continuous, high-frequency internal bombardment creates a massive hydrodynamic overpressure pushing outward against the compressive self-interaction (Pinch Effect) of the node. The structural integrity of the proton is therefore not maintained by a mystical "glue," but by a perfectly balanced kinetic resonance.

13 The Visible Universe (SU) as a Temporary Energetic Quarantine

The Global Universe (GU) contains an infinite Euclidean space paired with an exact, invariant total quantity of energy. The ultimate equilibrium state of this system is absolute, smooth homogeneity, where the field rests at its ground tension (ρ_{GU}). When massive wave collisions create an extreme local concentration of energy, the surrounding vacuum cannot instantly absorb or distribute this density without breaking global balance. To preserve field integrity, the non-linear medium forces this excess energy into a temporary energetic quarantine. Through the Pinch Effect, the energy is wrapped into closed, localized structural sinks—creating what conventional physics incorrectly terms "matter."

The Visible Universe (SU) is not an independent cosmic reality, but a massive, localized disturbance zone within the GU. It is an ensemble of energetic quarantines. Because these dense sinks are under immense field tension relative to the surrounding homogeneous medium, the GU continuously drives the system toward equilibrium. The quarantines are slowly dissolved over billions of years, gradually radiating their trapped energy back into space via stellar emission and radioactive decay. The ultimate destiny of the SU is a complete, harmonious dissolution back into the uniform ground state of the GU.

14 Phenomenological Perception: The Biological Translation of Field Mechanics

The removal of a substantial matter concept requires a complete re-evaluation of human sensory perception. The human body itself is a macroscopic resonance system—a highly synchronized network of dense energetic sinks. The nervous system operates as a biological measurement apparatus designed to register energy densities, gradients, and impact catastrophes within the Euclidean space.

From this field-mechanic viewpoint, seemingly distinct senses like vision (optics) and touch (haptics) merge into a single underlying principle: the registration of energetic impact. The human brain does not interact with solid substances; it translates spatial density variations into neurological illusions:

- **The Optical Impact (Vision):** When an encapsulated photon capsule ($v_0 = 0$) hits the energy sinks of the optic nerve, its pure kinetic energy discharges in a sharp resonance catastrophe ($E = h \cdot f$). The brain interprets this specific frequency discharge—the density of the kinetic impact—as color and brightness.
- **The Haptic Impact (Touch):** When a fingertip approaches an object (such as a table), the dense energetic sinks of the human nerve endings approach the external sinks of the object. The nervous system registers the fierce electromagnetic repulsion generated by the carrying energy of the external structure. If the external energy sink is tightly wound and hyper-dense, the field repulsion gradient is abrupt and unyielding. The brain translates this steep gradient as "hard". If the external sink possesses a wider, more flexible resonance pattern, the field yields slightly during approach. The brain translates this flatter gradient as "soft". Material "tangibility" is thus an illusion. It is the biological interpretation of localized energy concentrations defending their coordinate space through destructive electromagnetic interference.

15 Conclusion

The Theory of the Global Universe (GU) offers a strictly geometric, ontologically monistic alternative to the standard paradigms of modern physics. By establishing mass as trapped carrying energy, gravity as a logarithmic density gradient, and the material universe as a temporary energetic quarantine, it successfully bridges quantum mechanics, thermodynamics, and macroscopic field physics. The GU model unifies reality under a single, elegant axiom: everything is pure energy, structured by geometry, striving for ultimate equilibrium.

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