

Emergent Cosmology of a Two-Phase Planar-Invasion Bubble Universe: Four-Force Unification, Majorana Neutrino Density Gradients, and Emergent Gravitation

Zhongyang Dong (Independent Researcher)
Co-Researcher: AI Collaboration Engine (Google Gemini / Grok)

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Abstract

This study proposes an emergent cosmological framework derived from a “Two-Phase Planar-Invasion” bubble universe scenario. In this model, the physical and geometric boundaries of a “single universe” (or bubble universe) are strictly defined as an independent and complete V_0 light neutrino quantum fluid matrix (i.e., the dead mother field). Diverging from the traditional standard Big Bang (Λ CDM) singularity cosmology and the assumption of spin-2 “gravitons,” we define the currently observable universe as a highly organized active cosmic plane (geometrically and topologically presenting as a rotating two-dimensional scimitar-like manifold). This plane continuously intrudes into and engulfs its higher-dimensional, degenerated, dead host body, which has already reached maximum entropy heat death.

To ensure theoretical rigor and avoid circular reasoning, this research employs a Parameter Calibration methodology. Utilizing the observed Cosmic Microwave Background (CMB) temperature of 2.73 K as the thermodynamic anchor, combined with the Stefan-Boltzmann law and geometric constants, we calibrate the fundamental quantum grid spacing of the V_0 mother field at $\lambda_{v0} \approx 5.27$ mm. Furthermore, through the Planck-Einstein relation, we derive the corresponding zero-point energy scale of the lightest ground-state neutrino as $E_{v0} \approx 2.35 \times 10^{-4}$ eV. Based on this calibrated scale, this paper establishes a qualitative fluid-geometric framework requiring no new free parameters. It provides a possible geometric picture for the bosonized emergence of transverse wave packets under an effective description, dimensional creation, dark matter phase transitions, and the unified equation of the four fundamental forces. Additionally, it proposes four falsifiable modern physics observational pathways, including altitude-differential microwave resonance. This paper primarily provides a qualitative framework and effective physical descriptions; quantitative fitting is reserved for future numerical work.

1 Bubble Universe Entity, Internal-External Resonance of the “Dual-Component Background,” and Parameter Calibration

In this theoretical system, an independent V_0 light neutrino quantum fluid matrix constitutes a complete “bubble universe.” The microwave background of the current bubble universe is not a singular cooling relic of the Big Bang, but rather comprises two distinct physical components derived from the dead universe’s quantum matrix:

1.1 Visual Background Component (Absolute Blackness and the V_0 Mother Field)

After the old universe reaches maximum entropy heat death, charged particles decay and completely evaporate. The entire bubble universe space ultimately evolves into a quantum superfluid

matrix governed by the Pauli exclusion principle, composed entirely of neutral neutrinos and infinitely stretched remnant light. This fluid matrix constitutes the absolute darkness of the night sky background and establishes the absolute geometric territory of the bubble universe.

1.2 Physical Separation of Wave Components: Tensor Strain Waves, Microwave Background Noise, and Parameter Calibration

The V_0 light neutrino quantum matrix exhibits near-incompressible fluid behavior at macroscopic scales, while possessing a non-zero effective shear rigidity at the microscopic grid level. When the high-speed rotating macroscopic active cosmic plane intrudes, uneven geometric tidal forces induce strain within the shear-rigid medium; this strain propagates outward in the form of “tensor strain waves,” which are transverse modes related to geometry and gravity. **Integrating the derivations from this series of papers, the essence of the speed of light (c_0) is the limit propagation speed of such tensor waves in the V_0 medium.**

The source of the Cosmic Microwave Background (CMB) noise is distinct from this. It originates in the critical region dominated by strong interactions, where charge symmetry breaking, ionization, and visible matter generation occur, subsequently exciting electromagnetic “transverse vortex wave packets.” Once these wave packets reach thermodynamic equilibrium in the V_0 medium, they manifest as microwave background noise in the form of a blackbody spectrum. Tensor strain waves and microwave background noise belong to different physical processes; the former does not directly constitute the source of the latter.

To establish a rigorous microscopic scale, we introduce the macroscopic microwave background noise temperature for parameter calibration: we take the observed $T_{\text{CMB}} = 2.73$ K as the macroscopic thermodynamic equilibrium input. Based on the energy density relationship of cavity radiation and utilizing quantum thermodynamic equations, we perform a reverse calibration:

$$T_{\text{CMB}} = \frac{hc_0}{k_B \lambda_{v0}} \quad (1)$$

Substituting known physical constants and 2.73 K, we calibrate the fundamental quantum grid spacing of the V_0 matrix as:

$$\lambda_{v0} = \frac{6.626 \times 10^{-34} \cdot 2.998 \times 10^8}{1.380 \times 10^{-23} \cdot 2.73} \approx 5.27 \times 10^{-3} \text{ m} \quad (2)$$

This result is of a similar order of magnitude as the cosmic neutrino background’s average spacing (about 1.43 mm) predicted by the Standard Model. While the temperature difference (~ 1.95 K vs. 2.73 K) introduces variance, this proximity corroborates a qualitative connection between macroscopic thermodynamics and microscopic fluid spacing.

This 5.27 mm microscopic fluid grid and the limit wave speed jointly lock in the global physical constants. Further utilizing the Planck-Einstein relation, we convert the grid scale into the corresponding lightest neutrino zero-point energy:

$$E_{v0} = \frac{hc_0}{\lambda_{v0}} \approx 3.77 \times 10^{-23} \text{ J} \approx 2.35 \times 10^{-4} \text{ eV} \quad (3)$$

Note on Electromagnetic Superposition: Electromagnetic radiation emitted by invading primordial black holes, old stars, and newly born stars undergoes physical superposition and interference with the inherent frequency of the quantum matrix during propagation, resulting in the anisotropic perturbation patches observed in the CMB.

1.3 Effective Action of Transverse Wave Packets and the Emergence of the Blackbody Spectrum

In this framework, light is defined as electromagnetic transverse vortex wave packets within the V_0 light neutrino fluid, rather than independent gauge bosons. To demonstrate that such wave packets

can generate a Planck blackbody spectrum under thermodynamic equilibrium, we construct a low-energy effective description under the premise of a “homogeneous, elastic, and dissipationless” medium, linking it to laboratory electromagnetic constants and the calibrated grid scale.

Following the geometric interpretation of electromagnetic phenomena in the subsequent “Paper 3” of this series, capacitance corresponds to the elastic storage capacity of the V_0 medium under polarization, and inductance corresponds to the inertial resistance of the tangential phase circulation. Taking the collective coordinate describing transverse polarization as the displacement field $\mathbf{u}_\perp(\mathbf{x}, t)$, its low-energy effective action can be written as:

$$S[\mathbf{u}_\perp] = \int d^4x \left[\frac{\rho_{\text{eff}}}{2} (\partial_t \mathbf{u}_\perp)^2 - \frac{\mu_{\text{eff}}}{2} (\nabla \mathbf{u}_\perp)^2 \right] \quad (4)$$

This formalism maps elastic energy storage and inertia to the gradient term and the time derivative term, respectively. In fluid mechanics, the effective transverse wave speed satisfies:

$$c_t^2 = \frac{\mu_{\text{eff}}}{\rho_{\text{eff}}} \quad (5)$$

Meanwhile, the speed of light limit in a laboratory vacuum is determined by electromagnetic constants. In the dynamic limit, the effective transverse wave speed is required to match the vacuum speed of light ($c_t = c_0$):

$$c_0 = \frac{1}{\sqrt{\varepsilon_0 \mu_0}}, \quad c_t = c_0 \quad (6)$$

A matching compatible with the aforementioned geometric picture is:

$$\rho_{\text{eff}} = \alpha \cdot \mu_0, \quad \mu_{\text{eff}} = \frac{\alpha}{\varepsilon_0} \quad (7)$$

Here, the proportionality coefficient α is fixed by the calibrated grid scale. Utilizing $\lambda_{v0} \approx 5.27$ mm and $E_{v0} \approx 2.35 \times 10^{-4}$ eV as the phase rigidity scale, we can take:

$$\alpha \sim \frac{E_{v0}}{c_0^2 \lambda_{v0}^3} \quad (8)$$

(Or an equivalent dimensional combination). This estimation is used to fix dimensions and orders of magnitude; specific numerical coefficients can be adjusted in a more microscopic matching, thereby connecting the coefficients of the effective action to the parameter calibration.

Under this quadratic action, expanding $\mathbf{u}_\perp$ into plane wave modes and implementing canonical quantization yields creation and annihilation operators for the two transverse polarization modes that satisfy bosonic commutation relations. When these modes reach thermodynamic equilibrium at temperature T , their average occupation number obeys the Bose-Einstein distribution. Combined with the phase space density of states in three-dimensional space ($\propto \nu^2 d\nu$), the energy density spectrum takes the Planck form:

$$u(\nu, T) = \frac{8\pi h \nu^3}{c_0^3} \frac{1}{e^{h\nu/k_B T} - 1} \quad (9)$$

Here, $T = 2.73$ K is given by observation as the macroscopic thermodynamic anchor (parameter calibration), rather than independently predicted by ε_0 .

The above construction demonstrates: under a homogeneous and dissipationless effective description, the collective excitations of V_0 transverse vortex wave packets exhibit bosonic statistics and reproduce the blackbody spectrum at a given temperature, without the need to assume independent photon entities. Here, ρ_{eff} is the effective inertial density of low-energy transverse excitations, which belongs to a different tier than the extremely high energy density of the microscopic topological tension described in Section 7.

2 Geometric Dimension Creation, Planar Depressurization, Angular Momentum Inheritance, and the “Secondary Universe Embryo” Ejection Mechanism

1. **Dimensional Symmetry Breaking:** The high-density rotating active cosmic plane cuts into the isotropic, dead V_0 light neutrino quantum matrix, instantaneously breaking spatial symmetry and forcibly cleaving the three-dimensional volumetric axes and the arrow of time evolution.
2. **Central High-Density Barrier and Planar Outer Expansion:** The center of the universal disc plane forms a high-pressure asymmetric barrier. Energy is forced to transmit directionally outward along the disc horizontally toward the leading edge with the lowest density. This propels the cosmic plane outward, elucidating the directionality of cosmic expansion and the high geometric flatness of space ($\Omega_k \approx 0$).
3. **Planar Galactic Angular Momentum Inheritance and the Genesis of Geometric Resistant Elastic Vortices:**
 - **2/3 Prograde Consistency:** Globally, approximately 66.7% of matter complies with the rotational direction and pressure-relief flow of the macroscopic plane, directly inheriting the global tangential angular momentum of the planar system.
 - **1/3 Retrograde Deflection Genesis:** The geometric inertial structure of the all-neutral quantum matrix itself generates geometric resistance when subjected to high-speed shearing. This fluid viscous friction triggers inelastic shear wave rebounds of the local spatial geometry at the boundary layer, microscopically reversing a portion of the main fluid motion into “geometric elastic reaction vortices.” Stars condensing within these shear rebound vortices lock in localized retrograde angular momentum, macroscopically manifesting as a divergence between the directions of rotation and revolution.
4. **Dual Active Universe Collision, Tidal Tail Ejection, and the 0-Space Inter-Universe Drift Mechanism:** When two active cosmic planes undergo a violent physical collision, intense shearing in the high-energy core regions tears and ejects massive high-dimensional “tidal tails” composed of pure light matter at the outermost peripheral regions. Relying on immense rotational kinetic energy and ejection inertia, these two tidal tails (secondary universe embryos) may directly pierce through the local V_0 quantum fluid, escaping the envelopment of the original bubble universe’s mother field. Upon plunging into the absolute void of “0-Space (Empty Zero-Space)”, since traditional spacetime metrics and fluid viscous damping completely fail, these pure mass fragments retain their full rotational angular momentum without dissipation, engaging in action-at-a-distance inter-universe drifting until they are captured by the dead V_0 field of another dead bubble universe, triggering the reboot of the next generation of the universe and completing the trans-generational inheritance of macroscopic rotational structures.

3 Microscopic Matter Creation Mechanisms, the 10-Bohr-Radius Critical Bifurcation, and Dual-Tier Majorana Neutrinos

This model establishes a phase transition mechanism driven purely by density and pressure gradients:

1. **Three Major Microscopic Pathways for Matter Creation:**

- **Phase Transition Driven by Extreme Density Differences:** The intrusion of the active cosmic plane generates extreme geometric compression and a massive pressure difference, instantaneously breaking the degenerate ground state of the V_0 background fluid, forcing light neutrinos to undergo intense phase-transition condensation, transforming into neutral matter seeds with rest mass.
 - **Head-on Collision Creation:** High-energy particle streams emitted by stars collide head-on with the dark quantum sea; the conversion of extreme kinetic energy brings massive localized pressure, triggering a mass-energy phase transition.
 - **Chain Snowball Effect:** Neutral micro-mass bodies create microscopic pressure wells (micro-gravitational effects), further capturing and compressing background neutrinos, triggering large-scale chain reactions of phase-transition condensation.
2. **Quantum Mechanical Critical Boundary of 10 Bohr Radii:** *(This remains a provisional phenomenological threshold; a precise derivation from the calibrated grid remains open for future research.)*
- **Below 10 Bohr Radii (Strong Excitation Zone):** Belongs to the extreme compression core zone. Electrically neutral structures are pulverized, triggering charge symmetry breaking, exciting transverse wave packets, and materializing into charged, visible luminous matter.
 - **Beyond 10 Bohr Radii (Safe Zone):** Kinetic energy and pressure drop. Constant background light neutrinos transform into electrically neutral dual-tier Majorana neutrinos (N_R):
 - **Heavy-Tier (V_2 , MeV–TeV effective scale):** Large mass, short mean free path; settles high on both sides of the plane, serving as the main mass body of dark matter and providing vertical downward dark pressure (P_{Dark}). *(Note: This is an effective mass scale post-phase transition within the framework; its reconciliation with laboratory neutrino mass upper limits is left for future research.)*
 - **Light-Tier (V_1 , keV–GeV effective scale):** Highly penetrating; receives vertical high-pressure kinetic energy, serving as the transverse depressurization messenger for dark energy.
3. **Chiral Capture Mechanism of Baryon Asymmetry:** The planar rotational shear force interacts with the extreme rotational fluid drag of ancient Kerr black holes. Antimatter baryons with specific spatial geometric polarities are directionally attracted and captured into the central high-pressure zone, where they are completely imprisoned or annihilated; regular matter baryons, however, gain transverse escape kinetic energy, forming the physical root cause of the drastic depletion of antimatter in the universe.

4 Creation of Primordial Magnetic Fields and Emergent Gravitational Fields (Graviton-Free Mechanism)

1. **Creation of Primordial Magnetic Fields:** Under the geometric shear of the high-speed rotation and transverse depressurization advancement of the scimitar plane, light electrons and heavy ions undergo large-scale velocity bifurcation, instantaneously generating superfluid currents that ignite primordial seed magnetic fields.
2. **Emergent Gravitational Field and Graviton-Free Mechanism:** This model completely discards the spin-2 “graviton” hypothesis. Newly generated Majorana dark matter forms a density gradient envelope decaying as $\rho_N(r) \propto 1/r^2$ around masses. Massive entities shield a portion of the vertically downward V_2 neutrino momentum flux. The gravitational emergence

mechanism of this framework formally resembles the Le Sage particle shielding model, but distinguishes itself from classic Le Sage difficulties through the following three points:

- **No Significant Drag or Heating:** The vertically down-pressing V_2 component is a condensed state of heavy-tier neutrinos post-phase transition, and its primary coupling with baryons is via density gradient stress rather than frequent collisions, hence producing no significant frictional drag or thermal dissipation.
- **Guarantee of the Equivalence Principle:** The equivalence principle is guaranteed by the topological identity of the shear damping (inertia) and stress gradient (gravity) exerted by the same A_b envelope on the same V_0 mother field.
- **Compatibility with Large-Scale Isotropy:** The background V_2 flux is isotropic when unshielded; the constant portion can be subtracted as a cosmological background, with only localized pressure differences manifesting as gravity.

The emergent universal gravitation and metric deflection thus satisfy:

$$\vec{g} = -\nabla\Phi_\nu \propto -\nabla\rho_N \propto -\frac{1}{r^2} \quad (10)$$

The universal gravitational constant G is determined by the anapole moment of the Majorana neutrino and the momentum transfer efficiency of the vertical dark pressure: $G = C \cdot \sigma_{\text{Anapole}} \cdot P_{\text{Dark}}$. The constant background naturally serves as a background subtraction, normalizing the cosmological constant Λ . Quantitative verification of this is left for comparison with solar system and pulsar data.

5 Dual Central Blockade, Early Universe Tsunamis, and the Physical Elimination of Singularities

1. **Dual Blockade of Central Interruption:** Galactic centers are subjected to a “four-way vector geometric cancellation” from the 360° laterally converging dark pressure from all around, as well as an ultimate one-way imprisoning pressure block wall formed by the black hole event horizon in the central ultra-high-density region.
2. **Tangential Angular Momentum Drag and Flat Rotation Curves:** Vertical high pressure forcibly inherits global rotational angular momentum when converted into transverse depressurization flow. Light-tier V_1 neutrinos spew outward, exerting a “tangential rotational drag force” on disc stars, directly providing tangential kinetic energy to peripheral galactic stars, supplying a qualitative dynamical mechanism for naturally deriving flat rotation curves.
3. **Early Universe Tsunamis and Elliptical Galaxy Profiles:** In the early stages of cosmic evolution, the rapidly advancing active cosmic plane V_0 front encountered resistance media of extreme density, generating massive nonlinear shock waves (tsunamis). These shock waves violently scattered the kinetic energy—which originally should have relieved pressure along the plane—into the vertical Z-axis direction, causing the early baryon and dark matter envelopes to “fluff up” vertically into ellipsoidal shapes. This mechanism offers a qualitative fluid dynamics pathway for the formation of elliptical galaxies.
4. **Quantum Elimination of Black Holes and Big Bang Singularities:** Majorana neutrinos are fermions, constrained by the Pauli exclusion principle. Under ultimate compression, neutrino Fermi degeneracy pressure provides an insurmountable quantum repulsive force, physically replacing the mathematical singularity with an “ultra-high-density quantum core” truncated by the grid scale, thoroughly eliminating the myth of a spontaneous Big Bang singularity.

6 Unified Equation of the Four Fundamental Interactions

The total action of the universe requires no assumption of any quantum gravity terms; it is directly written as the sum of microscopic gauge fields, fermions, and the Seesaw Mechanism Lagrangian triggering the phase transition:

$$\mathcal{S}_{\text{total}} = \int d^4x \sqrt{-g} [\mathcal{L}_{\text{Gauge}} + \mathcal{L}_{\text{Fermion}} + \mathcal{L}_{\text{Higgs}} + \mathcal{L}_{\text{Seesaw}}] \quad (11)$$

The three microscopic forces are strictly governed by the fluid gauge group $SU(3)_C \times SU(2)_L \times U(1)_Y$. Macroscopic gravity, triggered by the phase transition generating N_R via $\mathcal{L}_{\text{Seesaw}}$, manifests directly as the geometric deflection of the macroscopic spacetime metric $g_{\mu\nu}$ through the pure scalar density gradient $\nabla \rho_N$, providing a unified geometric picture.

7 Ultimate Implementation of the Law of Energy Conversion: Release of High-Dimensional Topological Potential Energy and Bubble Universe Reincarnation

1. **Topological Potential Energy Storage and Zero-Point Energy Unification:** When the previous old universe moved toward heat death and maximum entropy, its total energy did not disappear but was converted into the “geometric topological potential energy” of the dead V_0 field. Inside the 5.27 mm flow tubes, an extreme microscopic tension of up to $\rho_0 \approx 10^{113} \text{ J/m}^3$ is tautly maintained, storing 100% of the previous universe’s energy.

In traditional quantum field theory, the colossal energy calculated by the vacuum zero-point energy integral:

$$\rho_0 = \int_{\Lambda_{IR}}^{\Lambda_{UV}} \frac{d^3k}{(2\pi)^3} \frac{1}{2} \hbar \omega_k = \frac{\hbar c}{16\pi^2} (\Lambda_{UV}^4 - \Lambda_{IR}^4) > 0 \quad (12)$$

is viewed as a mathematical disaster of divergence (the cosmological constant problem). However, in this theoretical framework, this is precisely the immense potential energy locked securely within the flow tubes of the V_0 grid. This high density is a topological storage within microscopic flow tubes and does not directly manifest as macroscopically measurable vacuum energy, thus offering a possible qualitative route to addressing the cosmological constant crisis.

2. **Energy Phase Transition Conversion Equation:** When the rotating active cosmic plane intrudes and severs these 5.27 mm flow tubes, the extreme tension instantly collapses and is released. The potential energy of the V_0 field strictly follows a unidirectional catalytic conversion path:

$$E_{\text{Potential}}(V_0 \text{ Mother Field}) \rightarrow E_{\text{Luminous}} + E_{N_R} + E_{\text{DarkPressure}} + E_{\text{EM}} \quad (13)$$

The converted energy is sequentially distributed into: visible luminous matter energy, dual-tier Majorana dark matter energy, dark pressure/dark energy driving expansion and rotation, and electromagnetic radiation energy. This outlines a qualitative framework for the fluid ebb-and-flow relationship wherein “regions of massive stellar birth must be accompanied by high-density dark matter deposition and dark pressure expansion.”

3. **The Great Brilliance Heat Death Sub-Phase and Reincarnation Reset to the V_0 Field:** As the V_0 enters the “Great Brilliance Heat Death sub-phase” fully saturated with light energy, ultimate matter undergoes particle evaporation and wavelength stretching during a prolonged decay, reverting back into a light neutrino matrix with zero energy. It resets into a dormant, dead V_0 mother field, quietly awaiting the awakening by the next inter-universe drifting fragment, completing the endless, ultimate cycle of the multiverse.

8 Experimental Verifications and Future Prospects: Observational Pathways for the 5.27 mm Quantum Grid

The primary contribution of this paper lies in establishing a “qualitative physical mechanism and fluid geometric framework.” If the V_0 field indeed possesses a fluid characteristic spacing of $\lambda_{v0} \approx 5.27$ mm (corresponding to an electromagnetic frequency of approximately 56.9 GHz), this framework can be cross-verified via the following four directions:

1. **Altitude-Differential Microwave Resonance Measurement (Probe of V_0 Grid Deformation):** Gravity is fundamentally a V_0 density compression. Calculations indicate that a 2000-meter elevation difference will induce a shift of approximately 0.012 Hz in the 56.9 GHz resonance frequency, which can be detected using mid-range Cesium beam atomic clocks.
2. **56.9 GHz Resonance Anomalies in CMB Polarization Spectra:** Searching for minute resonance peaks or anomalous B-mode scattering polarization at this frequency band.
3. **Fine Structure of the GZK Cutoff for Ultra-High-Energy Cosmic Rays:** Searching for minute step-like attenuations or diffraction dissipation features induced by geometric scattering proportions with the background field.
4. **Fluid Dispersion Effects of High-Frequency Gravitational Waves:** If gravity is the emergence of pressure gradients in the V_0 fluid, detecting velocity delays and dispersion produced by grid interference when millimeter-scale high-frequency gravitational waves pass through the matrix will serve as direct mechanical evidence.

Future Challenges for Quantitative Calculation and Physical Bridging:

Future research will be dedicated to resolving the mathematical loop from the microscopic to the macroscopic. This includes:

- **Compatibility of CMB Isotropy and Acoustic Peaks:** This framework intends to reconcile its relationship with the 10^{-5} magnitude of high isotropy via a three-stage thermal hysteresis during the invasion process (smoothing out early geometric perturbations via subsequent thermalization), multiple reflections and mixing of microwave wave packets at the V_0 boundary, and the finally frozen angular power spectrum peak positions. *Until a quantitative match to the Planck acoustic-peak positions and amplitudes is demonstrated, a tension with precision CMB data remains.*
- **Fluid Dynamics Closure:** Substituting the calibrated 5.27 mm scale into the Navier-Stokes fluid equations to derive the specific rotational function $v(r)$ and Sérsic luminosity profiles.

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References

- [1] Guth, A. H. (1981). Inflationary universe: A possible solution to the horizon and flatness problems. *Physical Review D*, 23(2), 347.
- [2] Penrose, R. (2010). *Cycles of Time: An Extraordinary New View of the Universe*. Bodley Head.
- [3] Verlinde, E. (2011). On the Origin of Gravity and the Laws of Newton. *Journal of High Energy Physics*, 2011(4), 29.
- [4] Majorana, E. (1937). Teoria simmetrica dell'elettrone e del positrone. *Nuovo Cimento*, 14, 171–184.
- [5] Hawking, S. W. (1974). Black hole explosions?. *Nature*, 248(5443), 30–31.
- [6] Dong, Z. (2026). *Emergent Cosmology Series: Paper 2*. viXra.org. Retrieved from <http://ai.vixra.org/abs/2609.0026>
- [7] Dong, Z. (2026). *Emergent Cosmology Series: Paper 3*. viXra.org. Retrieved from <https://ai.vixra.org/abs/2610.0023>