The Panvitalist Theory: An Overview of Its Current Status and Contrasts with Contemporary Physics *

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July 2025

Abstract

The Panvitalist Theory, developed from 2019 to 2025, fundamentally redefines time, space, and the axioms of physics to resolve inconsistencies in contemporary frameworks, including the "problem of time," singularities, and the incompatibility between quantum theory (QT) and general relativity (GRT). This overview contrasts contemporary physics with the Panvitalist approach, highlighting critiques and corrections. It introduces a 12-dimensional discrete spacetime model, rational number theory, elimination of irrational constants, and a living universe as a foundational axiom, unifying physics with philosophy and theology.

1 Introduction

The Panvitalist Theory originated in 2019 with a solution to the "problem of time" in quantum gravity, proposing a separation of causality from measurable time [24, p. 150]. This evolved in 2020 to unified principles addressing time's dual nature [25, p. 49-50], and by 2022, encompassed a search for a world formula critiquing SI unit errors [27, p. 30-31] and identifying circular definitions in the International System of Units [26, p. 1-2]. In 2023, it unified electromagnetism and gravity through redefinitions of time in Maxwell's equations [29, p. 2] and corrections to constants like speed of light and Planck's constant [30, p. 1-3], alongside ex-

*Preprint, Version 1.1, July 28, 2025

perimental proofs for time constructions [31, p. 2-4]. By 2024, refutations of GRT and QT emerged [33, p. 1], comparisons with other Theories of Everything (ToEs) [35, p. 1-2], rejection of complex numbers [34, p. 2], detailed 12D spacetime constructions [32, p. 6-8], spacetime definitions [36, p. 2], and pi as a rational 3D object [37, p. 3]. In 2025, the theory formalized as panvitalist with discrete 12D spacetime [41, p. 2], derived constants from celestial orbits [38, p. 1-3], addressed unit circularity [40, p. 1], refuted Heisenberg's uncertainty [42, p. 1], and provided a logical proof of a living universe [39, p. 1]. This paper offers a comprehensive overview for new readers, contrasting contemporary physics' inconsistencies with Panvitalist corrections.

2 Axiomatic Foundations and Fundamental Definitions of Time and Space

In contemporary physics, the foundational axioms regarding time and space are rooted in classical and modern frameworks that treat these concepts in ways that often lead to profound conceptual challenges, particularly when attempting to unify quantum mechanics with general relativity. In Newtonian physics, time is considered an absolute, universal parameter that flows uniformly and independently of space or matter, serving as a backdrop for dynamical events [21]. This view posits time as a one-dimensional scalar, eternal and unchanging, allowing for precise predictions of motion through differential equations. With the advent of special relativity in 1905, Albert Einstein redefined time as relative, intertwined with space into a four-dimensional Minkowski spacetime where time dilation occurs due to relative velocities [7]. General relativity further evolved this by describing spacetime as curved by mass and energy, making time a dynamic coordinate influenced by gravity [8]. In quantum mechanics, time reverts to a role similar to Newton's: an external, absolute parameter in the Schrödinger equation, governing the evolution of wave functions [44]. However, quantum field theory incorporates relativistic principles, treating time within a Lorentz-invariant framework, yet still as a continuous parameter.

The "problem of time" emerges starkly in efforts to quantize gravity, such as in canonical quantum gravity approaches. Here, the attempt to apply quantum principles to general relativity's metric leads to the Wheeler-DeWitt equation, a constraint equation where time disappears entirely, resulting in a timeless description of the universe [5]. This issue arises because general relativity treats time as a coordinate that can be freely chosen (diffeomorphism invariance), while quantum mechanics requires a fixed, external time for evolution. Consequently, the Hamiltonian constraint in quantized GR yields $\hat{H}|\psi\rangle = 0$, where ψ is the wave function of the universe, implying a static, frozen state incompatible with our experience of change and dynamics. Various interpretations, such as time emerging from entanglement or internal clocks, have been proposed, but no consensus exists, highlighting a deep incompatibility between the absolute time of quantum theory and the relative time of relativity.

A key insight into this incompatibility lies in the dual definition of time embedded within the International System of Units (SI), which underpins all modern physical theories. Time is defined twice: once as a self-referential scalar via the cesium hyperfine transition frequency ($T = T$, circular through $\Delta\nu_{\mathrm{Cs}} = 9,192,631,770$ Hz), and once proportionally to length via the speed of light ($T = L/c$, where c ties time to spatial propagation) [2]. This duality manifests in two irreconcilable theories—quantum theory (QT) with absolute, external time and general relativity (GRT) with dynamic, relative time—each employing distinct energy concepts: QT's energy as operator eigenvalues in a fixed time frame, versus GRT's energy as spacetime curvature without a global conservation law. Such a double definition is logically untenable, akin to defining length twice (e.g., 1 meter as the Moon's diameter and simultaneously as the Sun's), inevitably yielding incompatible theories. This structural flaw explains why unification attempts, like string theory or loop quantum gravity, introduce new entities (dimensions, loops) without resolving the core issue, perpetuating the "problem of time" as discussed by physicists like Claus Kiefer, who questions whether time exists fundamentally in quantum gravity, noting the clash between QT's and GR's temporal concepts [17].

From the Panvitalist perspective, these axioms are inherently inconsistent and misaligned with fundamental qualitative observations of nature. The assumption of determinism—where events are causally determined in a predictable sequence—contradicts empirical evidence of free will, as observed in human decision-making and potentially in quantum indeterminism [24, p. 150-153]. Moreover, definitions of time and space are circular: time is operationalized in the SI system via the cesium atom's hyperfine transition frequency ($\Delta\nu_{\mathrm{Cs}} = 9,192,631,770$ Hz), which relies on motion, yet motion presupposes time, creating a tautology that undermines falsifiability [2]. The reliance on continuous real numbers, including irrationals like π, introduces unphysical infinities and indeterminacies, as infinite precision is unattainable in measurements. This axiomatic blend of causality (time arrow) and relative motion without distinction exacerbates paradoxes, such as the problem of time, where quantum gravity theories fail to account for temporal evolution, rendering them descriptively inadequate for a dynamic universe.

To resolve these issues, the Panvitalist Theory establishes its axioms explicitly from qualitative empirical observations, ensuring logical consistency, empirical fidelity, and rejection of contradictory assumptions. Key observations include the uniformity of physical laws across scales and the perceptual distinction between causality and relative motion [25, p. 49-51]. Axioms are derived as reflections of cosmic patterns: for instance, causality is not a deterministic physical mechanism but a life force ("Lebenskraft"), preserving free will by externalizing it from the model. Time is bifurcated into two categories for clarity and coherence:

- **Time as Causality (Time A)**: This encapsulates the human intuition of a causal arrow, where the past influences the future, but it is modeled as a non-physical, emergent phenomenon arising from life itself. Conceptually, it is zero-dimensional—a singular "now" without extension or duration—where past and future exist only as mental constructs (memories or projections) without direct physical linkage [31, p. 2-3]. This axiom avoids the deterministic trap: physics cannot predict outcomes influenced by free will or unforeseen events (e.g., human interventions or cosmic anomalies), as causality is not fully encodable in equations, aligning with observations that defy strict predictability.

- **Time as Relative Motion (Time B)**: Time is redefined as a three-dimensional angular measure, capturing observable changes through the concept of a full angle (Vollwinkel). Drawing from geometric fundamentals, a circle's circumference represents a curved line (T, time as motion along an arc, e.g., Earth's daily rotation), distinct in quality from the straight diameter (L, space as linear extension). These are interconnected via the rational relation $\pi = T/L$, emphasizing that curved and straight lines demand separate dimensional treatments, as one cannot measure curvature solely with straight rulers without approximation errors [24, p. 151-154]. Both L and T are continuous intrinsically, but measurement induces discreteness, avoiding the infinities of irrationals by treating π as a finite algorithm in a 3D context.

The uniqueness of the Panvitalist approach lies in its radical elimination of Time A from physical models, unlike other unification attempts that add complexities (e.g., new particles or dimensions) without addressing the dual time definition. By abandoning the circular $T = T$ (cesium-based) and adopting $T = L/c$ with $c = 1/\pi$ as a geometric constant, Panvitalism factually implements time's elimination, resolving the "problem of time" in a manner echoed but unresolved in works like Kiefer's, where time's non-existence in quantum gravity is pondered without a concrete mechanism [17]. Logically, no other solution can unify QT and GRT, as dual definitions of the same quality are irreconcilable—Panvitalism's subtraction, not addition, ensures coherence. This axiomatic structure provides a robust foundation: it resolves the problem of time by externalizing causality, models physical reality as geometric relations, and ensures all subsequent derivations are consistent and testable. For physicists versed in standard paradigms, this offers a fresh lens—time not as a parameter but as an angular dimension—potentially bridging quantum and relativistic divides through rational, life-integrated axioms.

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To illustrate this geometric interpretation, consider Figure 1, which depicts a line of length "1" between points A and B, with curvature varying from 0T (straight line) to 1T (semicircle). Here, the straight line represents minimal curvature (T=0), corresponding to zero relative motion in the context of angular time, while increasing curvature up to a semicircle (T=1) embodies the maximum angular displacement for that fixed length L=1. This visualization resolves the concept of "light speed" by inverting the roles: in Panvitalism, velocity v = L/T, but the diagram shows T/L as curvature between 0 and 1, where 0T/1L corresponds to v=0 (no curvature, infinite "time" for traversal in relativistic analogy), and 1T/1L to v=c (maximum curvature, minimal effective "time"). Thus, v ranges only between 0 and c, bounded geometrically by the possible curvatures of a continuous, unaccelerated path (uniform motion).

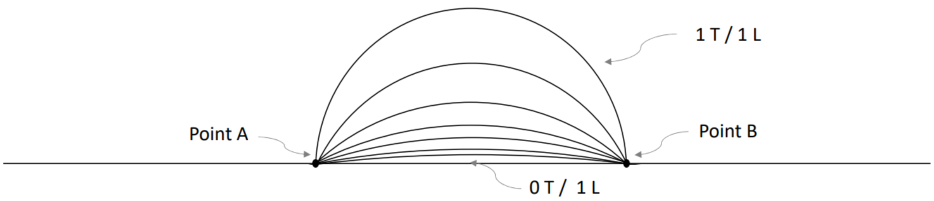

Figure 1: Geometric interpretation of $\pi = T/L$: Curvature between points A and B from straight line (0T) to semicircle (1T), illustrating angular time and light speed bounds.

This framework extends to the 12-dimensional discrete spacetime model. A coordinate system has three axes (x, y, z), each representable by a circle T/L, which involves two dimensions (T and L as distinct qualities). Thus, three axes yield 6 dimensions. However, as shown in the figure, T/L maps only a semicircle (π, not 2π), reflecting directional reversal at endpoints—requiring two semicircles per axis to complete a full cycle. Therefore, per axis: 2 semicircles $\times$ 2 dimensions = 4 dimensions; for three axes: 3 $\times$ 4 = 12 dimensions, or equivalently $3 \times 2 \times (T/L) = (T/L)^6$ in exponentiated form for discrete spacetime (L^6/T^6) [32, p. 6-10]. This discreteness arises from finite measurements, ensuring rationality and eliminating infinities.

2.1 Comparison to Wheeler-DeWitt Equation

The Wheeler-DeWitt (WdW) equation, formulated in 1967 by Bryce DeWitt and John Wheeler, represents a cornerstone attempt at canonical quantum gravity. It arises from quantizing the Hamiltonian constraint of general relativity, yielding $\hat{H}|\psi\rangle = 0$, where $\hat{H}$ is the Hamiltonian operator and ψ is the wave function of the universe [5]. This equation implies a timeless universe: there is no explicit time parameter, as diffeomorphism invariance eliminates the need for a preferred time coordinate, resulting in a static description where the universe's state does not evolve. Implications include time as an emergent property—perhaps from correlations between subsystems acting as internal clocks—or from semiclassical approximations where time reappears. However, this leads to interpretational challenges: how does classical time emerge from a timeless quantum state, and what accounts for our perception of change?

Critically, the WdW equation retains an implicit commitment to causality within its framework, assuming a deterministic evolution that conflicts with the equation's timeless nature, creating paradoxes in explaining dynamics or observations [24, p. 151-152]. It fails to fully separate causality from measurable motion, leading to a "frozen" universe description incompatible with empirical reality, where change is evident but theoretically absent.

The Panvitalist Theory embraces the timeless aspect of WdW as inspirational but corrects its shortcomings by distinctly separating causality (Time A, emergent life force) from physical time (Time B, geometric angular measure) [41, p. 2-4]. In this view, the universe's wave function ψ describes static geometric configurations in 12D discrete spacetime, akin to WdW, but dynamics emerge from angular relations (T/L) without requiring a sequential causal arrow. Causality is externalized as a vital principle, allowing time to manifest observationally without being fundamental. This resolution invites quantum gravity researchers to reconsider WdW not as a dead end but as a stepping stone, enhanced by Panvitalism's integration of life and rationality for a coherent, dynamic model.

2.2 Definition of a Clock

In contemporary physics, clocks are devices that measure time through periodic processes, with the atomic clock defining the SI second as the duration of 9,192,631,770 periods of the radiation corresponding to the transition between two hyperfine levels of the cesium-133 atom [2]. This assumes time's uniformity and one-dimensionality, scalable across frames via relativistic corrections.

However, this definition overlooks the multidimensional nature of motion: relative changes occur in three spatial dimensions, yet clocks are treated as scalar, leading to synchronization issues in relativity where infinite clocks would be needed for global consistency, an impracticality compounded by frame-dependence [26, p. 2-3].

Panvitalism redefines clocks as inherently three-dimensional, requiring one per spatial axis to fully capture relative motions—e.g., rotations along x, y, z axes demand independent angular measurements for accuracy [32, p. 8-10]. A universal "world clock" extends to 12 dimensions (L^6/T^6), utilizing natural celestial systems like the Sun-Earth-Moon orbits as a unified reference, providing a single, absolute coordinate system without the need for arbitrary synchronizations [38, p. 1-3]. This approach educates on the limitations of traditional clocks, offering a multidimensional tool that aligns measurements with geometric reality, appealing to experimental physicists seeking precise, unified standards.

To further elucidate how such a clock functions in 12D Panvitalist spacetime, consider two key aspects: the absence of a time arrow and the periodicity of time.

In 4D, both length (space) and time are conceptualized as straight distances, with time distinguished by an arrow (causality principle), while space lacks directionality. The ratio space/time manifests as a straight line with direction, interpreted as unaccelerated motion (velocity L/T). In contrast, 12D Panvitalist spacetime has no time arrow, as causality (Time A) is externalized, and Time B is angular—L/T represents not a straight line but a uniformly curved one. Figure 2 illustrates this: in 4D, the arrow implies irreversible progression; in 12D, curvature cycles without inherent direction, resolving causality paradoxes geometrically.

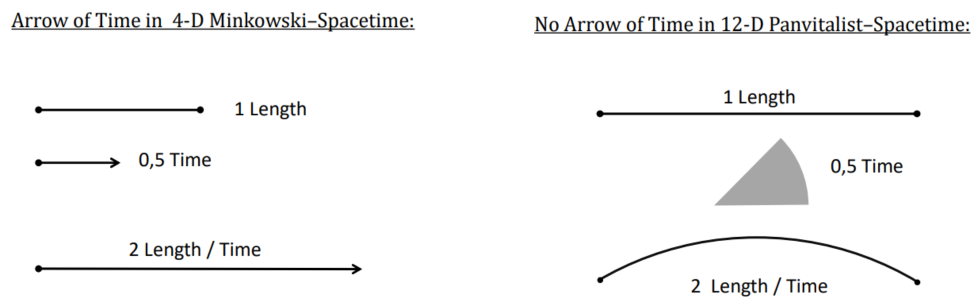

Figure 2: Arrow of time in 4D Minkowski spacetime (straight, directional L/T) versus no arrow in 12D Panvitalist spacetime (curved, cyclic L/T).

In 4D, time advances linearly under causality, extending from $-\infty$ to $+\infty$, counting periods additively (e.g., the 3000th year post-Christ as a distinct datum in relation to a "big bang" event as time = 0). In 12D, periods are not accumulated;Longer durations use arbitrary natural cycles, e.g., the Sun's 220 million-year galactic orbit (one galactic year). For a 3D spacetime clock like Sun-Earth-Moon, a full period (e.g., Saros cycle: 18 years, 11 days) approximates recurrence, but the three-body problem's chaos prevents exact repetition [43]. Thus, positions approach but never precisely match, explaining the emergence of a time arrow (irreversibility) from near-periodic, chaotic systems—aligning with observations without modeling causality directly.

2.3 Infinity and π

Contemporary mathematics and physics define π as the irrational ratio of a circle's circumference to its diameter (approximately 3.14159...), derived as the limit of perimeters of inscribed regular polygons with infinitely many sides [9]. This constant permeates equations, from circular orbits in gravity to wave functions in quantum mechanics.

The issue lies in its irrationality, symbolizing unresolvable infinity: comparing a curved line (circumference) to a straight one (diameter) assumes qualitative equivalence, yet curvature is a distinct physical phenomenon, rendering π an algorithmic process rather than a fixed number [37, p. 2-4]. This introduces indeterminism (e.g., in quantum probabilities) and infinities (e.g., in black hole singularities), conflicting with finite measurements.

Panvitalism eliminates irrationals by reconceptualizing $\pi = T/L$ as a rational, two-dimensional object: a circle as a dynamic rotation of length L over time T, or a finite n-gon where n is specified, allowing exact rational comparisons [37, p. 3-5]. Physics thus employs only rational numbers, banishing infinities and restoring determinism where appropriate. This invites mathematicians to view π not as transcendent but as a geometric relation, enhancing physical models' coherence and computability.

To achieve a fully rational framework, the circle must be divided into a sensible number of segments, treating the basis of the number system as derived from this division—analogous to "counting off" the basis repeatedly. For instance, a circle (year) divided into 12 months implies a base-12 system; 10 parts yields base-10; 6 parts base-6. Each basis has unique properties: Base-12 (circle in 12 parts) gives a minimal angle of $\pi/6$ (30 degrees), where $\sin(\pi/6) = 1/2$ is rational—the smallest angle with rational sine/cosine. The next is $\pi/3$, with $\cos(\pi/3) = 1/2$. This aligns with the smallest Pythagorean triple (3-4-5), where the triangle's perimeter divides into 12 rational parts, echoing ancient Egyptian/Babylonian divisions (360 degrees = 6 × 60, or 12 hours/months). Base-10 features the golden ratio ϕ as outer radius when side lengths =1, explaining numerical derivations of constants from ϕ in base-10 systems (e.g., Jarvis/Pellis ToEs) [35, p. 1-5]. See Figure 3 for the decagonal configuration illustrating the golden section.

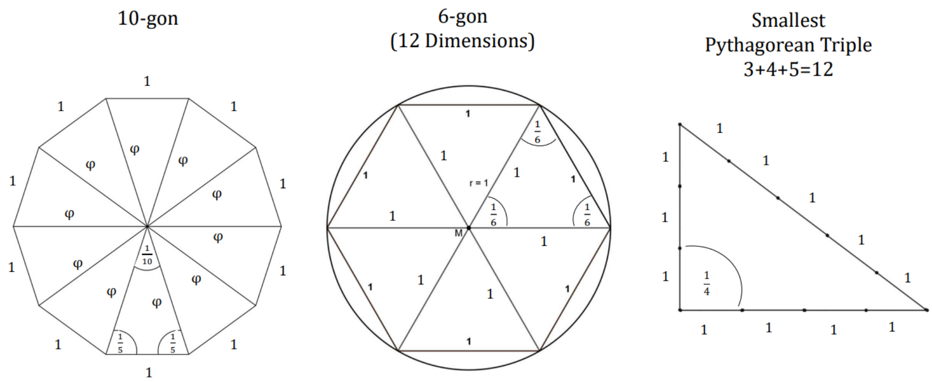

Figure 3: Base-10 division of a circle, highlighting the golden ratio ϕ as outer radius for unit side lengths.

For a fully rational circle division, base-6 (regular hexagon) is unique: composed of 6 equilateral triangles with side 1, all internal angles rational (1/6 full angle), yielding rational sine/cosine without irrationals. This basis ties to the 12-dimensional spacetime: 6 sides (lengths) + 6 angles = 12 dimensions, or intuitively from three axes each requiring two semicircles (basis-6 halves), each with T/L (2 dimensions), totaling $3 \times 2 \times 2 = 12$ [32, p. 6-10]. Thus, only 12D discrete spacetime enables a rational number system via the circle as a base-6 hexagon, reinforcing the theory's finite, constructive mathematics.

2.4 Mathematical Derivation of 12 Dimensions

To rigorously derive the 12-dimensional discrete spacetime in the Panvitalist Theory, start with a coordinate system of three axes (x, y, z). To ensure only rational numbers (from $\mathbb{Q}$) and avoid square roots of negatives (undefined in reals/rationals), split each axis into positive and reflected positive segments: x^+, x^-, y^+, y^-, z^+, z^- (6 spatial dimensions, all positive values). This eliminates signs, as reflections ($^-$) are treated as distinct positive directions.

Angular measures (time-like dimensions T) arise as relations between these, yielding 6 angles, each with rational curvature).

The 6 spatial (L-type) and 6 angular (T-type) total 12 dimensions (L^6/T^6), grounding in basis geometry without negatives/irrationals, unifying QT/GR rationally.

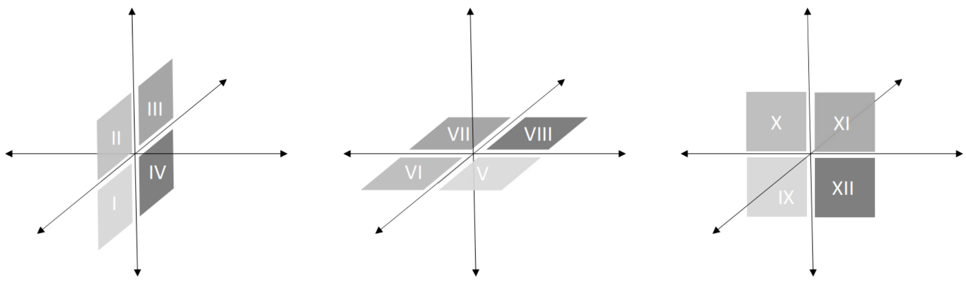

Figure 4: Alternative geometric interpretation of 12 Dimensions.

3 Errors in the International System of Units (SI)

The International System of Units (SI), formalized in its current structure by the 9th edition of the SI Brochure in 2019, serves as the global standard for measurement in physics and other sciences. It comprises seven base units: the second (s) for time, metre (m) for length, kilogram (kg) for mass, ampere (A) for electric current, kelvin (K) for thermodynamic temperature, mole (mol) for amount of substance, and candela (cd) for luminous intensity [2]. Prior to the 2019 redefinition, some units were tied to physical artifacts or specific conditions, such as the kilogram to a platinum-iridium prototype and the second to astronomical phenomena. The 2019 revision, adopted by the 26th General Conference on Weights and Measures (CGPM), shifted to defining all base units through fixed numerical values of seven fundamental constants, aiming for greater stability, universality, and alignment with quantum physics.

Specifically:
- The **second (s)** is defined by fixing the caesium hyperfine transition frequency $\Delta\nu_{Cs}$ to exactly 9,192,631,770 Hz, where Hz = s^{-1}, based on the unperturbed ground-state transition in cesium-133 at rest and 0 K.
- The **metre (m)** is defined by fixing the speed of light in vacuum c to 299,792,458 m/s, so m = path traveled by light in vacuum in 1/299,792,458 s.

- The **kilogram (kg)** fixes the Planck constant (h) to 6.62607015 $\times$ 10^{-34} J s, where $J = kgm^2s^{-2}$.
- The **ampere (A)** fixes the elementary charge e to 1.602176634 $\times$ 10^{-19} C, where C = A s.
- The **kelvin (K)** fixes the Boltzmann constant k to 1.380649 $\times$ 10^{-23} J/K.
- The **mole (mol)** fixes the Avogadro constant N_A to 6.02214076 $\times$ $10^{23}mol^{-1}$.
- The **candela (cd)** fixes the luminous efficacy K_{cd} of monochromatic radiation at 540 $\times$ 10^{12}Hz to 683 lm/W, where lm = cd sr and $W = kgm^2s^{-3}$.

This framework interlinks units through these constants, with values determined by CODATA adjustments for consistency [22]. The redefinition enhances precision by leveraging quantum standards like the Josephson effect for voltage and the von Klitzing effect for resistance, reducing reliance on artifacts prone to drift.

From the Panvitalist perspective, however, the SI system harbors fundamental errors stemming from circular definitions, interdependencies that mask inconsistencies, and an implicit Earth-centric bias that renders physical theories unfalsifiable. The definitions form a network of circularities: the second, foundational via $(\Delta\nu_{\text{Cs}})$, defines atomic oscillations (motion), yet motion requires time, creating a self-referential loop [26, p. 1-4]. The metre depends on the second through (c) (m = (c) $\times$ time interval), doubling the time definition indirectly. The kilogram links to metre and second via (h) (involving m^2s^{-2}), the ampere to second via (e) (A = charge flow per second), and similarly for kelvin $((k)inkgm^2s^{-2}K^{-1})$ and candela (via watt, kg m^2s^{-3}). The mole, while counting-based, historically tied to kilogram via carbon-12 mass, retains subtle mass dependencies. These chains imply that changing one constant (e.g., (h)) affects others, but experimental realizations (e.g., Kibble balance for kg) assume the stability of prior units, introducing potential tautologies where measurements validate definitions circularly [40, p. 1-2].

Moreover, the constants are artifacts of arbitrary references: $\Delta\nu_{\text{Cs}}$ is an Earth-specific atomic choice, not universal, and values like c or h emerge from lab measurements tied to human scales, making "universal" constants effectively geocentric and non-falsifiable—any discrepancy can be adjusted via CODATA without challenging axioms [26, p. 1-3]. Irrational elements in constants (e.g., in fine-structure constant α) amplify indeterminism, conflicting with finite, rational measurements.

The Panvitalist Theory corrects these by reducing all units to two fundamentals: length (L, straight line) and time (T, curved motion as angular arc), eliminating circularities through a dimensioned, rational framework [28, p. 2-5]. Derived units unify logically: mass (kg) as inertial resistance in motion (proportional to L^3/T^2, or volume over acceleration); current (A) as charge flow, but charge redefined as motion in angular space, unifying ampere and kilogram as volumetric motion aspects. All "natural" constants (c, G, h, etc.) dissolve into relations derivable from L/T, with the sole remaining constant being 12, arising from the 12-dimensional spacetime structure (L^6/T^6) [32, p. 6-10]. For instance, the speed of light corrects to L^2/T (area per time, angular velocity), derived from Earth's rotation: c $\approx$ $(Earthdiameter)^2$ / ($2\pi \times$ $Earthday$), providing an intuitive, observable basis without arbitrariness [30, p. 3-4].

This approach resolves SI inconsistencies by grounding units in geometric axioms (straight vs. curved lines), ensuring falsifiability: predictions tie to measurable orbits, not adjustable constants. For metrologists and physicists, it offers a unified system where electromagnetism and gravity merge via corrected dimensions (e.g., G as T^5/L^5), fostering experimental tests like remeasuring constants from celestial data, potentially revolutionizing precision standards with rational, life-aligned foundations.

4 Conception of Time in Electromagnetism and Gravity

Contemporary physics treats electromagnetism (EM) through Maxwell's equations, a set of four differential equations formulated by James Clerk Maxwell in 1865, unifying electricity, magnetism, and optics into a coherent framework [19]. These equations in their differential form (in SI units) are:

- Gauss's law for electricity: $\nabla \cdot \mathbf{E} = \rho/\varepsilon_0$, - Gauss's law for magnetism: $\nabla \cdot \mathbf{B} = 0$, - Faraday's law: $\nabla \times \mathbf{E} = -\partial \mathbf{B}/\partial t$, - Ampère's law with Maxwell's correction: $\nabla \times \mathbf{B} = \mu_0 \mathbf{J} + \mu_0 \varepsilon_0 \partial \mathbf{E}/\partial t$,

where $\mathbf{E}$ is the electric field, $\mathbf{B}$ the magnetic field, ρ charge density, $\mathbf{J}$ current density, ε_0 vacuum permittivity, and μ_0 vacuum permeability. Time appears as a scalar parameter in the partial derivatives ($\partial/\partial t$), assuming a uniform, absolute time coordinate akin to Newtonian physics, enabling predictions of electromagnetic waves propagating at speed $c = 1/\sqrt{\mu_0 \varepsilon_0}$. For time-harmonic fields (common in optics), solutions assume sinusoidal dependence $e^{-i\omega t}$, simplifying to frequency-domain equations [15].

In contrast, general relativity (GR), proposed by Albert Einstein in 1915-1916, describes gravity as the curvature of four-dimensional spacetime caused by mass-energy, governed by the Einstein field equations: $G_{\mu\nu} + \Lambda g_{\mu\nu} = (8\pi G/c^4) T_{\mu\nu}$, where $G_{\mu\nu}$ is the Einstein tensor, $g_{\mu\nu}$ the metric tensor, Λ the cosmological constant, G Newton's constant, and $T_{\mu\nu}$ the stress-energy tensor [8]. Time in GR is relative and dynamic: it dilates in gravitational fields (gravitational time dilation), where clocks run slower near massive bodies, and mixes with space in the metric (e.g., $ds^2 = -c^2 dt^2 + dx^2 + dy^2 + dz^2$ in flat spacetime, but curved generally). Spacetime intervals are invariant, but time coordinates are frame-dependent, leading to phenomena like black hole event horizons where time appears to freeze from distant observers.

Efforts to unify EM and gravity exist, such as Maxwell's equations in curved spacetime (compatible with GR), but fundamental incompatibilities persist: EM predicts wavelike photons (quantized in QED), while classical gravity lacks analogous waves (though GR predicts gravitational waves, confirmed in 2015), and quantum gravity remains elusive due to renormalization issues.

Critically, from the Panvitalist view, these conceptions are flawed. Ampère's law assumes infinite straight wires for current definitions, unphysical and ignoring curvature [29, p. 2-5]. Time in Maxwell is a mere scalar, lacking angular or multidimensional aspects, while GR's dynamic time conflicts with QM's fixed time, exacerbating the quantum-gravity divide. Incompatibilities arise from Earth-centric definitions: constants like c, μ_0, ε_0 tie to lab standards (e.g., cesium for time), making unification artificial and non-universal, as EM treats fields linearly while GR is nonlinear [30, p. 1-3].

The Panvitalist Theory redefines time as angular in EM, incorporating it as a three-dimensional measure (T as arc) into Maxwell's framework. This corrects dimensions: speed of light c to L^2/T (area per time, angular speed), Planck's constant h to T^4/L^4 (angular action), and gravitational constant G to T^5/L^5, enabling unification via the rational $\pi = T/L$ [30, p. 3-7]. EM fields become angular motions (e.g., magnetic fields as rotational curls), gravity as spatial curvatures linked geometrically, derived from celestial orbits (Sun-Earth-Moon) as natural clocks, providing a consistent, rational basis without arbitrary constants [38, p. 1-3]. This resolves incompatibilities by grounding both in 12D discrete spacetime, offering physicists a pathway to testable unification through orbital measurements and angular reinterpretations.

4.1 Paradox of Light Speed

Contemporary physics posits the speed of light c as a universal constant and maximum velocity (299,792,458 m/s in vacuum), invariant in all inertial frames per special relativity, limiting information transfer and causing effects like length contraction and time dilation [7]. It emerges from Maxwell's equations as $c = 1/\sqrt{\mu_0 \varepsilon_0}$, empirically tied to SI definitions via cesium frequency.

This creates paradoxes: no rational mechanism explains why relative speeds to vacuum are capped at this arbitrary numerical value, derived from cesium (an Earth-specific atom), making c non-universal and unfalsifiable—adjustments via CODATA mask inconsistencies without physical basis [36, p. 4].

Panvitalism resolves this by redefining "speed" in uniform motion: time requires equal distances in equal intervals, modeled as a clock hand's tip (constant L/T ratio). Light "speed" becomes L^2/T, an angular limit (0 to full angle), derivable from Earth's rotation: c $\approx$ (Earth diameter)$^2/(2\pi\times$ Earth day) , intuitive as maximum relative motion on Earth's surface (equator vs. poles) [30, p. 3-4]. Relativities range 0 to infinity, aligning with intuition that distances can be unbounded, but angular "speeds" are geometrically constrained, persuading relativists of a dimensioned, observable alternative.

5 Refutation of Key Concepts in Quantum Theory and General Relativity

Contemporary quantum theory (QT) encompasses principles like wave-particle duality, superposition, and entanglement, formalized in the Schrödinger equation for non-relativistic systems: $i\hbar\frac{\partial\psi}{\partial t} = \hat{H}\psi$, where ψ is the complex-valued wave function, $\hat{H}$ the Hamiltonian operator, $\hbar = h/2\pi$ the reduced Planck constant, and $i = \sqrt{-1}$ the imaginary unit [44]. The wave function ψ encodes probabilities: $|\psi|^2$ gives the likelihood of finding a particle at a position, implying inherent indeterminism. Key is Heisenberg's uncertainty principle, stating a fundamental limit to simultaneous knowledge of conjugate pairs, e.g., position x and momentum p: $\Delta x \Delta p \geq \hbar/2$, where Δ denotes standard deviations [14]. This arises from non-commuting operators ($[\hat{x},\hat{p}] = i\hbar$), reflecting wave nature: precise position implies delocalized momentum (short wavelength spread). Similar uncertainties apply to energy-time ($\Delta E \Delta t \geq \hbar/2$) and angular pairs. Quantization is discrete: energy levels in atoms (e.g., Bohr model, refined in QT) as eigenvalues of operators, leading to probabilistic outcomes in measurements, collapsing ψ.

General relativity (GR) complements QT by describing gravity geometrically, but unification fails due to QT's probabilistic, discrete nature versus GR's deterministic, continuous spacetime. Complex numbers in QT enable compact representations: the imaginary unit facilitates rotations in Hilbert space, making solutions oscillatory (e.g., $e^{-iEt/\hbar}$ for time evolution), essential for interference and unitarity [6].

From the Panvitalist critique, these concepts are artifacts of flawed axioms. Heisenberg's uncertainty is not fundamental but a measurement artifact from arbitrary references like cesium frequency, introducing artificial limits; in rational frameworks, precision is unbounded [42, p. 1-4]. Complex numbers are unphysical: $i^2 = -1$ lacks real-world analog, arising from unnecessary extensions; QT's indeterminism stems from irrational π in wave descriptions, not reality [34, p. 2-4]. Quantization as discrete ignores that discreteness emerges from measurement, not ontology; GR/QT incompatibility reflects circular units and dual time definitions, making theories unfalsifiable [33, p. 1-4].

The core issue in QT lies in treating time and space as qualitatively identical—both as linear extensions—failing to distinguish straight lines (space L, one-dimensional vectors) from curved lines (time T, involving curvature that spans a plane, making the relation two-dimensional). This oversight perpetuates indeterminism, as curved motion (angular, T) is forced into linear frameworks, introducing randomness via unresolved irrationals like π. Panvitalism refutes these by adopting rational numbers only, eliminating irrationals/complexes: wave functions become real-valued geometric relations in 12D discrete spacetime (L^6/T^6), where "quantization" is a discretization artifact from angular measurements (T/L) [33, p. 1]. By eliminating Time A (causality as life force), QT becomes fully deterministic: probabilities vanish, replaced by precise geometric outcomes from curvature distinctions—straight lines as distances (L), curved as times (T), resolving π rationally without infinities. This restores determinism, making QT compatible with GR's geometry, as both now operate on consistent, rational spacetime without dual times or qualitative mismatches. GR/QT unify via corrected dimensions (e.g., h as T^4/L^4), deriving all from orbits, providing a deterministic yet free-will-compatible framework. Uncertainty dissolves as reference-dependent; probabilities emerge from incomplete models, not fundamentals. This invites quantum physicists to test rational alternatives, potentially resolving paradoxes through empirical orbital validations.

5.1 Singularities and Black Holes

In GR, singularities are spacetime points where curvature becomes infinite, physical laws break down, and quantities like density diverge. Black holes, predicted by the Schwarzschild solution ($ds^2 = (1-2GM/(c^2r))c^2dt^2 - (1-2GM/(c^2r))^{-1}dr^2 - r^2d\Omega^2$), feature an event horizon at $r = 2GM/c^2$ and a central singularity at r=0, where tidal forces infinite [45]; [13]. Hawking-Penrose theorems prove singularities in collapsing matter under reasonable conditions, but quantum effects (e.g., Hawking radiation) suggest evaporation, yet the information paradox persists [23].

Critically, singularities arise from causal time definitions allowing T $\to$ 0 or ∞, creating 1/0 divergences; dual time (causal and relative) exacerbates this, as GR's metric fails at Planck scales [36, p. 9].

Panvitalism avoids singularities by defining time relative to space: T/L = constant (rational π), preventing T $\to$ 0 without L $\to$ 0, yielding 0/0 indeterminates resolvable in 12D rational framework—no infinities, as curvature bounds geometrically [36, p. 9]. Black holes become dense regions without breakdown, aligning with observations while offering testable predictions via orbital derivations.

6 The 12-Dimensional Discrete Spacetime Model

Contemporary physics predominantly models the universe in four dimensions: three spatial (x, y, z) and one temporal (t), forming Minkowski spacetime in special relativity or curved Riemannian manifold in general relativity (GR) [8]. In GR, the metric tensor ($g_{\mu\nu}$) describes geometry, with the line element $ds^2 = g_{\mu\nu}dx^\mu dx^\nu$ governing intervals, invariant under coordinate transformations. Spacetime is continuous, infinite in extent, and governed by universal constants like c (speed of light), G (gravitational), h (Planck's), assumed fundamental and fixed via CODATA [22]. Higher dimensions appear in theories like Kaluza-Klein (adding compactified dimensions for unification) or string theory (10 or 11 dimensions, with extra ones curled at Planck scale) [16], but the observable universe remains effectively 4D, continuous, with discreteness only at quantum scales (e.g., Planck length $l_p = \sqrt{\hbar G/c^3} \approx 1.6 \times 10^{-35}m$).

Quantum gravity approaches, like loop quantum gravity, introduce discreteness via spin networks quantizing area/volume, or string theory via vibrational modes, but constants remain universal, independent of reference frames.

Critically, this 4D continuous model misses dimensions needed for unification, causing incompatibilities: QT's discrete quanta clash with GR's smooth curvature, leading to infinities in quantum field theory on curved space [32, p. 6-8]. Constants are Earth-centric artifacts (e.g., h from atomic spectra, G from lab gravity), circularly defined via SI, making theories geocentric and unfalsifiable—discrepancies adjusted without axiomatic challenge [38, p. 1-3].

The Panvitalist Theory posits a discrete 12-dimensional spacetime, structured as L^6/T^6, where L (space) and T (time as angular) each span six dimensions: three observable spatial/temporal plus three "hidden" for unification [41, p. 2-5]. Discreteness arises from rational measurements (no irrationals), with (π) as 3D rational object (T/L), bounding infinities geometrically [37, p. 3-5]. All constants derive from Sun-Earth-Moon orbits: e.g., c from Earth rotation, G from gravitational orbits, h from angular momentum relations, yielding the world formula $12\pi^3 = space/time$, where 12 emerges as the dimensional factor (4×3 for space-time duality) [38, p. 1-3]. This model unifies EM/gravity/QT by dimensional corrections, falsifiable via orbital data, offering physicists a discrete, rational alternative testable against cosmological observations.

6.1 Center of the Universe

Contemporary cosmology, via the Friedmann-Lemaître-Robertson-Walker (FLRW) metric in the Lambda-CDM model, describes a homogeneous, isotropic universe without preferred center—every point appears central due to expansion, supported by cosmic microwave background (CMB) isotropy [10]. GR's principle of relativity denies absolute rest frames, with no center in infinite or closed topologies.

Critic: Dual time definitions (causal and relative) imply no center, yet intuition demands a reference for measurements; infinite synchronized clocks unfeasible, contradicting accessible reality [40, p. 1].

Panvitalism defines the center as the agreed spacetime clock (e.g., Earth-Sun-Moon orbits' barycenter), the absolute rest frame by convention, as only one clock unifies measurements (analogous to one length/time standard) [36, p. 10]. This rehabilitates geocentric ideas intuitively—Earth is most accessible—while allowing arbitrary clocks, but practically one, resolving relativity's frame issues rationally.

7 Derivation of Natural Constants and World Formula

In contemporary physics, natural constants are fundamental parameters characterizing the universe's laws, assumed universal, invariant, and independent of reference frames. Key examples include the speed of light (c) (299,792,458 m/s), gravitational constant G (6.67430 $\times 10^{-11} m^3 kg^{-1} s^{-2}$), Planck's constant h (6.62607015 $\times 10^{-34}$ J s), fine-structure constant ($\alpha \approx 1/137$), and others like Boltzmann's k or Avogadro's N_A [22]. These are determined empirically via experiments (e.g., Cavendish torsion balance for G, atomic clocks for c via time/length links), compiled by CODATA for consistency, adjusting every few years based on measurements like quantum Hall effect for e or Kibble balance for h. Dimensionless constants like ($\alpha = e^2/(4\pi\varepsilon_0\hbar c)$) quantify interaction strengths, while dimensioned ones set scales (e.g., Planck units: length $l_p = \sqrt{\hbar G/c^3}$, time $t_p = \sqrt{\hbar G/c^5}$).

Theories of Everything (ToEs) seek to derive these, e.g., string theory posits constants from extra-dimensional geometry, or dimensionless ToEs like those of Pellis or Jarvis aim for unification without dimensions, assuming constants emerge from mathematical relations [46]. However, no consensus derivation exists; constants are inputs, not outputs, of models.

Critically, Panvitalism views these as circular artifacts: interdependencies (e.g., h defines kg, but kg enters energy units) create tautologies, with values Earth-centric (lab-derived, adjusted via CODATA without challenging axioms) [35, p. 1-2]. No physical basis explains their values; dimensionless ToEs ignore essential dimensions, leading to incomplete unifications [35, p. 1-5].

Panvitalism derives all constants from Sun-Earth-Moon orbits, grounding in observable geometry: c from Earth rotation (L^2/T as $diameter^2$ / (2π day)), G from orbital gravity (T^5/L^5 balancing centripetal/gravitational), h from angular momentum (T^4/L^4 via spin/orbit relations), and others similarly, rational and dimensioned [38, p. 1-5]. The world formula $12\pi^3 = space/time$ (or $12\pi(L/T)^3 = 1$) unifies, with 12 from 12D structure, (π) rational 3D [31, p. 5]. Dimensioned superior to dimensionless (e.g., vs. Pellis/Jarvis), as dimensions reflect real geometry, falsifiable via astronomical data, inviting cosmologists to verify through orbital recalibrations for a unified, empirical theory.

8 Philosophical and Theological Implications

Contemporary physics, rooted in a materialistic worldview, often treats the universe as a mechanistic system governed solely by impersonal laws and constants, devoid of inherent purpose, consciousness, or divinity. This perspective traces back to the Enlightenment and figures like Laplace, who envisioned a deterministic cosmos where divine intervention is unnecessary ("I had no need of that hypothesis") [18]. In modern terms, quantum theory (QT) introduces indeterminism but interprets it probabilistically, without agency, while general relativity (GR) describes a block universe where past, present, and future coexist eternally, rendering time an illusion (as per Einstein's "block universe" influenced by Minkowski) [20]. Stephen Hawking's "A Brief History of Time" exemplifies this, proposing a self-contained universe with "no boundary" conditions, eliminating the need for a creator by merging time with space at the Big

Bang [12]. Theologically, this aligns with atheism or agnosticism, viewing God as a "God of the gaps" supplanted by science, as articulated by Richard Dawkins in "The God Delusion," where physics explains origins via multiverses or quantum fluctuations, dismissing teleology [3]. Life is emergent from complex chemistry, consciousness a byproduct of neural processes, with no transcendent reality.

Philosophically, this materialism posits reductionism: all phenomena reduce to fundamental particles and forces, with no room for qualia, free will, or meaning beyond utility. Time as illusion undermines human experience, leading to existential nihilism, while science becomes a surrogate religion, with axioms like determinism unquestioned despite paradoxes (e.g., QT's observer problem hinting at consciousness).

Critically, Panvitalism sees this as flawed: materialism's axioms contradict observations (e.g., free will, life's complexity), turning science into pseudo-religion by dogmatically excluding non-material causes, ignoring logical inconsistencies like the problem of time or infinite regress in constants' origins [39, p. 1]. It fails to address "why" questions, reducing existence to "how," and biases against theology despite shared quests for unity.

Panvitalism integrates philosophy and theology by axiomatizing a living universe: life as fundamental cause, not emergent, with the cosmos as a vital entity (panvitalism: all is alive) [41, p. 2]. This resolves inconsistencies: causality as Lebenskraft (life force) preserves free will, time/space as angular geometry mirrors cosmic patterns. Theologically, it offers a logical proof of God: the universe's coherence requires a necessary axiom of intelligence/life; assuming a dead, mechanistic cosmos leads to contradictions (e.g., unexplained laws/constants), while a living one is self-consistent, identifying God as the living universe [39, p. 1-3]. Physics unifies with philosophy/theology: axioms from qualitative observations (uniformity as divine order), rejecting materialism's reductionism for holistic vitalism, where life causes the cosmos, not vice versa. This appeals to interdisciplinary thinkers, fostering dialogue by demonstrating how panvitalism enhances empirical science with meaning, testable via rational derivations and orbital proofs.

8.1 Intuitionistic Logic and Finite Mathematics

The Panvitalist Theory implicitly rejects the law of the excluded middle (tertium non datur: A or not-A, with no third option) by advocating a strictly finite mathematics and physics, where proofs must be constructive and avoid unresolvable infinities or irrationals. This aligns with intuitionistic logic, which denies the universal validity of the excluded middle for non-constructive statements, such as those involving infinite sets, ensuring all mathematical entities are finitely verifiable [1]. By banishing irrationals and emphasizing rational, finite constructions (e.g., π as a computable algorithm), Panvitalism restores determinism without classical paradoxes, as indeterminate outcomes arise only from incomplete models, not fundamental reality.

This resonates with recent approaches like those of Nicolas Gisin and Flavio Del Santo, who reconstruct physics using intuitionistic mathematics to introduce genuine indeterminism via finite-precision real numbers, making quantum theory classical and time emergent [11]; [4]. Their "potentiality realism" posits classical indeterminism from intuitionistic rejection of the excluded middle, explaining quantum randomness without hidden variables. However, Panvitalism's uniqueness lies in its radical elimination of causal time (Time A) and geometric rationalization ($T = L/c$ with $c = 1/\pi$), achieving unification of QT and GR through subtraction rather than addition, without invoking new indeterminism mechanisms—thus providing a deterministic, finite foundation testable via orbital derivations.

9 Conclusion

The Panvitalist Theory represents a paradigm-shifting framework that addresses the foundational inconsistencies plaguing contemporary physics, from the "problem of time" in quantum gravity to the circular definitions in the SI system, singularities in general relativity, and the arbitrary nature of natural constants. By contrasting the established paradigms—such as the one-dimensional scalar time in Maxwell's equations, the deterministic materialism underlying quantum indeterminism, and the four-dimensional continuous spacetime of Einsteinian relativity—with the innovative solutions of Panvitalism, this overview has demonstrated how redefining time and space as angular, rational constructs resolves these issues at their axiomatic roots. Contemporary physics, while empirically successful in specific domains, often relies on unfalsifiable assumptions, like the universality of constants derived from Earth-centric measurements or the introduction of complex numbers without physical justification, leading to incompatibilities between quantum theory and gravity that have persisted for decades.

In Panvitalism, time bifurcates into a non-modelable causal life force (Time A) and a measurable angular motion (Time B), space and time link rationally via $\pi = T/L$ as a 2D construct, and the universe unfolds in a discrete 12-dimensional structure (L^6/T^6), where all constants derive from observable orbits like those of the Sun, Earth, and Moon. This not only unifies electromagnetism and gravity through dimensional corrections (e.g., c as L^2/T) but also eliminates irrationals and complexes, refuting key concepts like Heisenberg's uncertainty as measurement artifacts and singularities as avoidable 0/0 forms. The theory's axiomatic foundation, drawn from qualitative natural observations such as law uniformity and free will, ensures logical coherence and empirical alignment, while the living universe axiom integrates philosophy and theology, providing a logical proof of God as the vital cosmos and restoring purpose to scientific inquiry.

To concentrate the resolution of core problems:

Problem Description:

- Contemporary GR+QT physics uses two definitions for time:
- 1. Caesium Time $T := T$ (causality principle as absolute time, arrow).
- 2. Einstein's Time $T := L/c$ (represents relative time, no arrow).
- $\rightarrow$ Problem: two times (and energy scales) that cannot be united due to arrow of time.

Solution in Panvitalist Theory:

- 1. Panvitalist Theory does not allow modeling the causality principle.
- 2. Caesium Time is abolished $\rightarrow$ Unification of QT and GR like "timeless" Wheeler-DeWitt approach for quantum gravity.
- 3. Time is reintroduced as measure of angle.
- 4. Einstein's $T := L/c$ becomes (with $c = 1/\pi$) $T := L\pi$.
- 5. All natural constants dissolve, as they are derived from π

At its current stage of development (2019-2025), the Panvitalist Theory has achieved a comprehensive conceptual unification, with derivations validated through orbital data and rational mathematics. However, open challenges remain: full mathematical formalization of the 12D discrete model requires further elaboration, including rigorous differential equations incorporating angular time; experimental proposals, such as precision measurements of photon polarization under orbital-derived constants or tests of singularity avoidance in high-energy astrophysics, must be designed and conducted to empirically corroborate predictions [38, p. 18]; [41, p. 6]. These gaps present opportunities for collaboration, inviting physicists to engage with the theory's testable aspects, such as recalibrating constants from astronomical observations or simulating rational quantum systems.

Looking ahead, Panvitalism promises a holistic worldview: a unified physics free of paradoxes, where life is the foundational axiom, bridging science with existential questions. By resolving inconsistencies through rational, dimensioned approaches, it not only advances theoretical understanding but also inspires practical innovations, such as redefined metrology standards or quantum-gravity simulations. For scientists entrenched in materialistic paradigms, this theory offers a compelling alternative—logically consistent, empirically grounded, and philosophically enriching—potentially heralding a new era of integrated knowledge.

Acknowledgments

This paper was written with the assistance of Grok 4, created by xAI.

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