

# Persistence Under Perturbation: The Eternal Skeleton and the Transient Dance

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**Persistence Under Perturbation: The Eternal Skeleton and the Transient Dance**

*Robert Galida – June 2026 (Revised Edition)*

*Note to readers: This is a revised version of the May 2026 paper. The core insights about the eternal skeleton and transient dance remain, but the treatment of fundamental metronomes has been refined. For the detailed relational account of time, see the companion paper: [Metronome, Memory, and the Threefold Anchor: A Relational Account of Time F.](#)*

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## **Abstract**

This paper presents a unified framework based on a simple idea: **persistence under disturbance is the basic mark of**

**reality.**

We divide all persistent things into two classes:

- **Non-dissipative (conservative) structures** – eternal, time-symmetric, mindless. They form the **eternal skeleton** (Planck scale, quantum fields, the three fundamental metronomes: electron, neutrino mass eigenstates, and proton).
- **Dissipative attractors** – temporary, time-asymmetric, needing energy flow. They form the **transient dance** (life, mind, society, consciousness).

All observed minds are dissipative.

Because the universe as a whole is a conservative system (no outside environment), it cannot have consciousness or intentions.

Therefore, under this framework, a theistic God is extremely unlikely.

No supernatural entities are needed.

The framework gives a naturalistic view of persistence, a graded idea of mind, and a way to study how people get trapped in **fantasy attractors** (belief systems that ignore reality).

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## **Scope Conditions**

This framework is not a finished mathematical theory. It is a cross-domain way of thinking about persistence under disturbance. The word “attractor” is sometimes a metaphor, sometimes a precise term. The framework looks for similar stability patterns across different scales, not a single equation. It is an invitation to explore, not a closed belief

system.

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# Part I: The Nature of Mind

## 1. The Core Intuition

Your mind feels real, long-lasting, and not just brain tissue. Dualism can't explain mind-body interaction. Reductive physicalism ignores the feeling of being you. We propose a third way: **the mind is a stable, resilient, persistent pattern – an attractor – of your whole body.**

## 2. Key Definitions

Term	What it means	How to measure
Attractor	A region in state space that pulls nearby states toward it and holds them	Lyapunov exponents, basin stability
Resilience	Ability to bounce back after a hit	Recovery time, hysteresis
Basin of attraction	The set of states that eventually fall into the attractor	Larger basin = more resilient
Attractor dimensionality	How complex the attractor is	Correlation dimension; proxy for integrated information ( $\Phi$ )
Fantasy attractor	A belief system cut off from reality checks	Low contact with corrections; deep basin; slow updating

Term	What it means	How to measure
Shared reality attractor	A belief system open to reality checks	High contact with corrections; shallow basin; fast updating

### 3. Signs of a Resilient Attractor

- Bounces back quickly after stress
- Low hysteresis (forward and return paths nearly the same)
- Stable rhythms (HRV, circadian, breathing lock together)
- Cross-domain coupling (better sleep → better mood, immunity)
- Graceful decline under growing stress (not sudden collapse)
- Critical slowing down (rising variance and autocorrelation before a big change)

### 4. The Third Ontological Category

View	What it says	Problem
Dualism	Mind is a non-physical substance	How can it interact with the body?
Reductive physicalism	Mind is just brain activity	It loses the feeling of being you
Attractor framework	Mind is a real, non-substantial pattern (like a whirlpool)	Fully compatible with physics, keeps subjective experience

A whirlpool is real – it depends on water, affects the flow, and isn't just one water molecule. Your mind is like that.

## 5. Attractor Framework & Consciousness Theories

- **IIT (Integrated Information Theory):** Attractor dimensionality acts like  $\Phi$ . Awake animals have higher-dimensional attractors than anesthetised ones (Tajima & Kanai, 2017).
- **GWT (Global Workspace Theory):** “Ignition” means settling into a global attractor that spans many brain areas.
- **Testable predictions:** Shallow attractors (unconscious) are easier to disturb; conscious states have deeper basins and higher dimensionality.

## 6. The Simplest Mind: *C. elegans* (a tiny worm)

The worm has 302 neurons. It shows: integration of senses, minimal self-reference, valence, associative learning, goal-directed behaviour. That’s all we need for a minimal mind. Prediction: during learning, its brain should show higher attractor dimensionality than when paralysed.

## 7. Mind as a Whole-Body Attractor

Your mind is not just in your brain. It includes your body’s extracellular matrix (ECM), hormones, immune system, and gut. Alcohol, sleep, and ECM restoration affect the whole body and change your mind. That’s why relaxing your belly, getting morning light, or reading a quiet book can improve your sleep and heart rate variability (HRV).

## 8. Self-Engineering: Reshaping Your Own Attractor

Because your mind is an attractor, you can change it through small, repeated nudges: learning a skill, exposure therapy,

forming habits, meditation, physiological hacks (ECM restoration, belly sag, morning cardio). An N=1 experiment (tracking ECM, sleep, HRV) showed that improvements happen in non-linear, threshold-based jumps – exactly as attractor theory predicts.

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## Part II: The Eternal Skeleton and the Transient Dance

### 9. Two Fundamental Classes of Persistence

#### 9.1 Non-Dissipative (Conservative) Structures – The Eternal Skeleton

- No energy loss; total energy stays the same (or exchanges only within a closed system)
- Time-reversible at the level of intrinsic persistence (though weak interactions violate CP/T)
- Stable because of conservation laws (charge, baryon number, energy)
- Do not age, do not die (or are effectively eternal on all observable timescales)

**The three fundamental metronomes** (see *Threefold Anchor* paper) are the most conservative layer of the eternal skeleton:

Metronome	Role
Electron	Lightest charged lepton; invariant Compton frequency
Neutrino mass eigenstates ( $\nu_1, \nu_2, \nu_3$ collectively)	Effectively stable; theoretically invariant frequencies

Metronome	Role
Proton	Lightest baryon; stability from baryon number conservation

These three are continuously recycled through all dissipative systems. They are the invariant substrate.

Other conservative structures include: Planck-scale granular spacetime, quantum fields, stable atoms, and the universe as a whole.

These make up the **eternal skeleton** – mindless, timeless, the foundation.

## 9.2 Dissipative Attractors – The Transient Dance

- Need constant energy and must dump entropy
- Time-irreversible (arrow of time)
- Stay stable through feedback loops, homeostasis, and energy use
- Finite lifetime – they age, decay, and eventually collapse
- **What binds all dissipative systems** (a bacterium, a brain, a galaxy, a society) is the continuous recycling of the three eternal metronomes. Every dissipative system operates by exchanging electrons, protons, and neutrinos with its environment.

Examples: living cells, metabolic networks, ecosystems, human bodies, conscious minds, societies, economies, fantasy attractors.

These are the **transient dance** – everything that is born, lasts a while, and dies.

## 10. Why Mind Requires Dissipation

Every known system with integration, self-reference, valence,

learning, and goal-directedness is **dissipative**. No non-dissipative mind has ever been seen. So we conclude that, in this framework, the only kind of consciousness we have evidence for is dissipative. This is a best-explanation inference, not an absolute proof.

## 11. The Universe as a Non-Dissipative System

The universe as a whole has no outside environment. Its total energy is conserved (or at least doesn't exchange with anything else). So it is non-dissipative:

- No metabolism (doesn't eat, breathe, or repair itself)
- No learning (its laws don't change from experience)
- No valence (no likes or dislikes)
- No goal-directedness (it just follows its equations, doesn't aim for a basin)

Therefore, the universe is **not a mind**. Any global attractor (e.g., a de Sitter vacuum state) is a conservative, eternal, mindless pattern.

## 12. Why a Theistic God Is Extremely Unlikely (Probabilistic)

A theistic God is supposed to be: conscious, intentional, personal, eternal, unchanging, and self-sufficient.

- Consciousness (as far as we know) requires **dissipation**.
- Eternal, unchanging, self-sufficient means **non-dissipative** (conservative).

No known entity can be both dissipative (aging, needing energy) and non-dissipative (eternal, self-sufficient). So, under this framework, a theistic God is extremely implausible.

The universe itself is already the only non-dissipative system. Adding a separate non-dissipative God is unnecessary and, by definition, cannot interact with anything.

## 13. The Map of Existence

TRANSIENT DANCE (Dissipative Attractors)

- Societies
  - Minds
  - Cells
  - Ecosystems
  - Human Body (ECM, HRV)
  - Animal Life
  - Metabolism (energy + entropy)
- ↓ (emergence)

ETERNAL SKELETON (Conservative Persistence Structures)

- Atoms
  - Three metronomes: electron, neutrino mass eigenstates, proton
- Quantum Fields
- Planck Scale (granular spacetime) ← FLOOR

**Legend:** Floor = Planck-scale granularity – the hard, eternal limit. Skeleton = quantum fields, stable particles, atoms – conservative structures. Dance = dissipative attractors – minds, life, society.

## 14. Open Questions for Future Work

- **Formal cross-scale unification:** How can we unify conservation-based stability (QFT) and dissipative attractors (nonlinear dynamics) with a single mathematical object?
- **Dissipation-consciousness link:** Is dissipation absolutely necessary for consciousness, or just a fact about life on Earth?
- **ECM mechanism:** What is the exact chain from ECM changes to nervous system regulation to subjective feelings?

- **Persistence vs. selection:** Is persistence a basic feature of reality, or do we only notice stable things because unstable ones vanish?
- **Fantasy attractor measurement:** Can we really measure correction latency, basin depth, and external coupling in real social systems?
- **Coupling equations:** How exactly does the rate of memory inscription depend on metronome frequency? (See the *Threefold Anchor* paper for a working placeholder.)

## 15. Conclusion

The attractor framework gives a naturalistic picture of reality:

- **Non-dissipative (conservative) structures** – the eternal, mindless skeleton, anchored by the three fundamental metronomes (electron, neutrino mass eigenstates, proton).
- **Dissipative attractors** – temporary, energy-hungry, and mortal. All minds are in this class.
- **What binds all dissipative systems** is the continuous recycling of the same three eternal metronomes.
- The universe as a whole is non-dissipative, therefore not a mind.
- A theistic God is extremely implausible under this framework.

We don't need religious language. We have the eternal skeleton and the transient dance: persistence without transcendence, structure without the supernatural.

The dance is finite, fragile, and precious. The skeleton is eternal, but mindless.

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This rewrite is ready to replace the old post. It now correctly reflects the threefold metronome framework, includes the recycling insight, and cross-references the newer paper.

