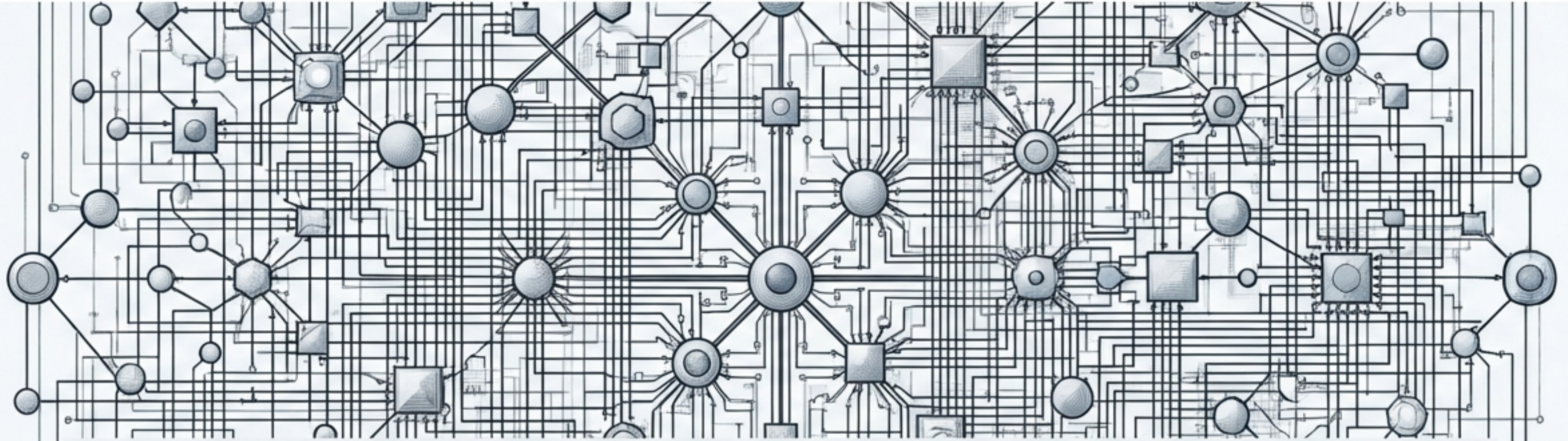


NON-MATERIALIST PHYSICALISM: AN EXPERIMENTALLY TESTABLE CONJECTURE



"You're nothing but a pack of neurons." – Francis Crick

Mankind's most successful story, natural science, offers a complete account of the universe. Yet, it leaves our own existence—consciousness—wholly unexplained.

This presentation argues that to save physicalism, we must revise our deepest assumptions about the nature of the 'physical' and the function of the brain. The result is a bizarre, but testable, prediction.

THE STORY SCIENCE TELLS US... AND THE CHAPTER IT CAN'T WRITE

THE ORTHODOXY: PHYSICALISTIC MATERIALISM.

The world is made of non-experiential 'stuff' exhaustively described by the equations of physics.

PHYSICAL BRAIN



CONSCIOUS MIND



WHY AREN'T WE ZOMBIES?

THE EXPLANATORY GAP.

The massive gulf between our physical description of the brain (electrical signals, chemical reactions) and the subjective reality of experience (the redness of red, the feeling of pain).

THE HARD PROBLEM.

Why does all this physical processing feel like anything at all? If the materialist story is correct, we should all be "philosophical zombies"—beings physically and behaviorally identical to humans, but with no inner experience.

THE LANGUAGE OF THE OLD PARADIGM



PHYSICALISM

The claim that the world is exhaustively described by the equations of physics and their solutions.



PHYSICALISTIC MATERIALISM

The combined view that physical reality is fundamentally non-experiential and is exhaustively described by physics.



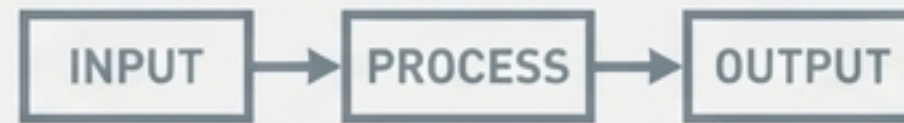
EPIPHENOMENALISM

The view that experience is a useless byproduct of brain activity, like steam from a locomotive. It has no causal power.



MATERIALISM

The metaphysical doctrine that the world is made of intrinsically non-phenomenal "stuff".



FUNCTIONALISM

The theory that mental states are defined by their causal roles, not their intrinsic nature. This implies "substrate neutrality"—a mind could run on silicon as easily as on neurons.

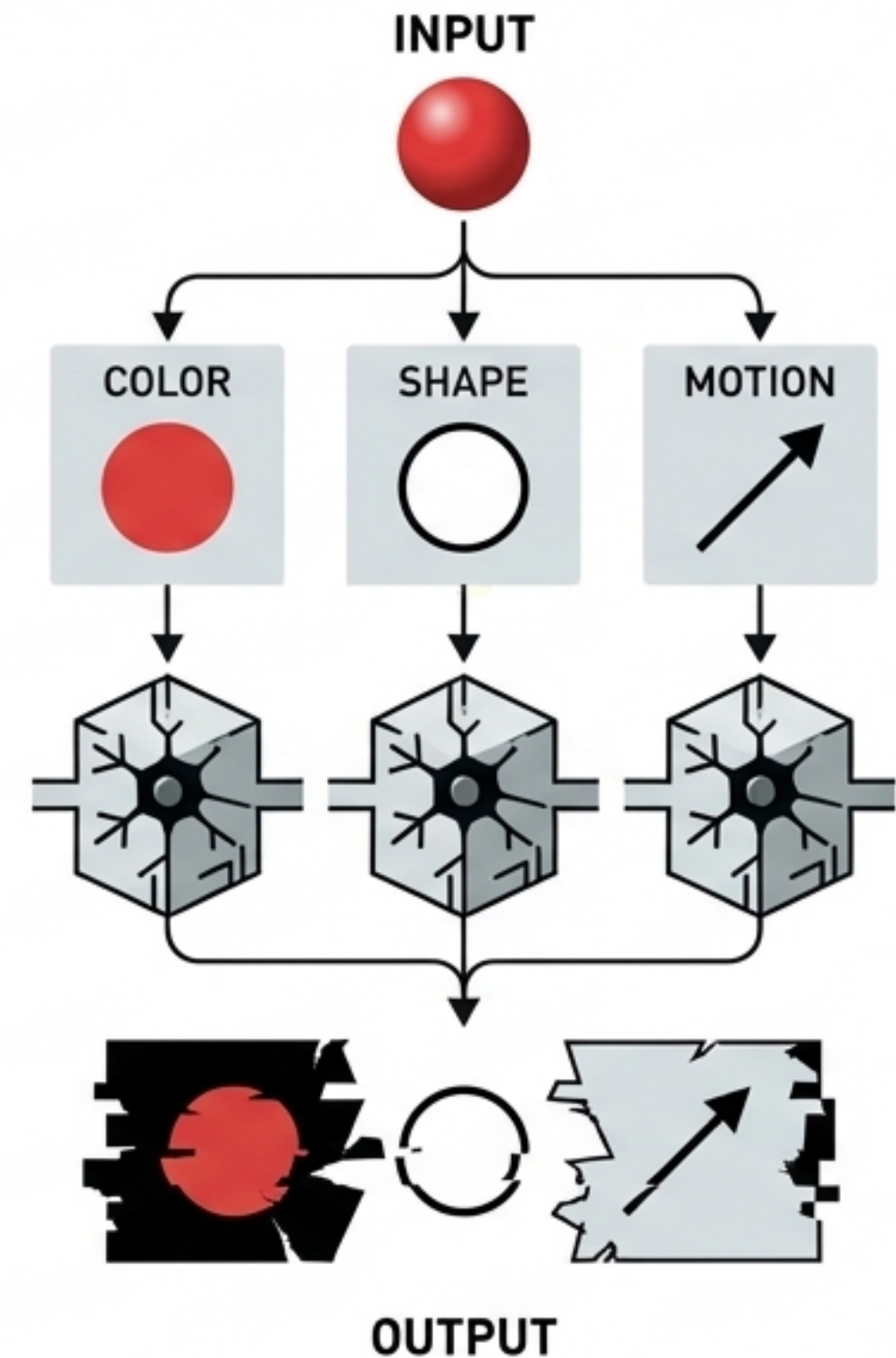
THE BINDING PROBLEM: THE GLITCH IN THE MATERIALIST MATRIX

Our brains process information in a distributed manner—color here, motion there, edges elsewhere. How are these separate micro-experiences “bound” into the unified objects we perceive?

Local Binding: How are the color, shape, and motion of a single red ball bound into one coherent object?

Global Binding: How are all the different objects in your visual field, plus sounds and other sensations, bound into a single, unified field of awareness for a single self?

The Classical Impossibility: Synchronously activating discrete, classical neurons cannot create a unified whole, any more than a symphony emerges from different people each thinking of a single note.



“The only realities are the separate molecules, or at most cells. Their aggregation into a ‘brain’ is a fiction of popular speech.”
- William James, *The Principles of Psychology* (1890)

James’s point suggests that if neurons are merely classical objects, our unified minds are a physical impossibility.



What if physics has never described a non-experiential world?

**What if its equations describe the
structure of experience itself?**

A New Foundation: Physicalistic Idealism

Experiential

Wavefunction

Physics

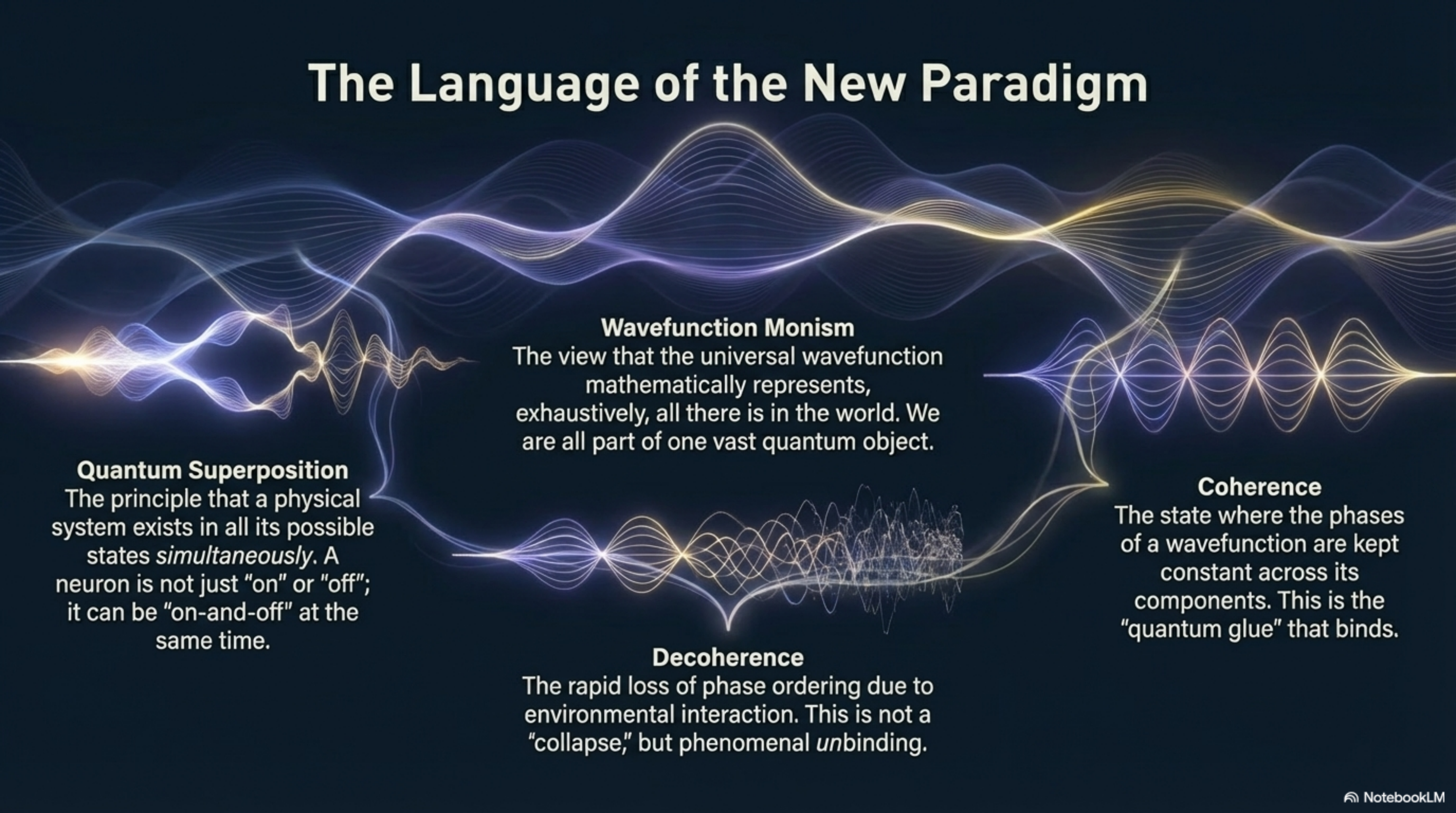
The ontological claim that reality is fundamentally experiential *and* that the natural world is exhaustively described by the equations of physics—specifically, the evolution of the universal wavefunction.

Monism: There is only one kind of “stuff,” and it is experiential. The “fire” in the equations is consciousness itself.

Physics is Complete: No “element of reality” is missing from the formalism. The Hard Problem was an artifact of a mistaken materialist assumption.

Radical Conservatism: This view proposes *no modification* to the existing mathematical formalism of quantum mechanics. It only reinterprets the ontology of what the math describes.

The Language of the New Paradigm



Wavefunction Monism

The view that the universal wavefunction mathematically represents, exhaustively, all there is in the world. We are all part of one vast quantum object.

Quantum Superposition

The principle that a physical system exists in all its possible states *simultaneously*. A neuron is not just "on" or "off"; it can be "on-and-off" at the same time.

Coherence

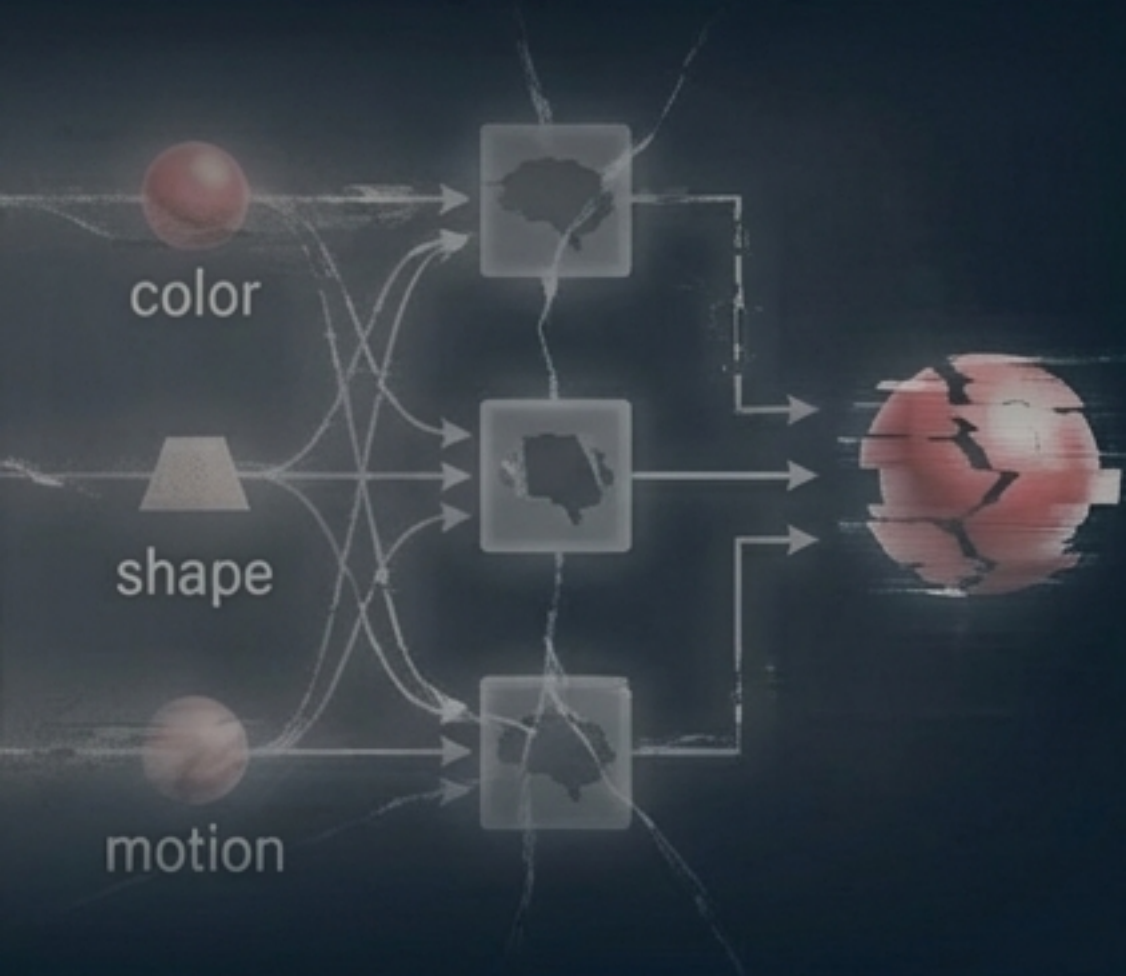
The state where the phases of a wavefunction are kept constant across its components. This is the "quantum glue" that binds.

Decoherence

The rapid loss of phase ordering due to environmental interaction. This is not a "collapse," but phenomenal *unbinding*.

Schrödinger's Neurons: The Physical Signature of Mind

Binding by Synchrony (Impossible)



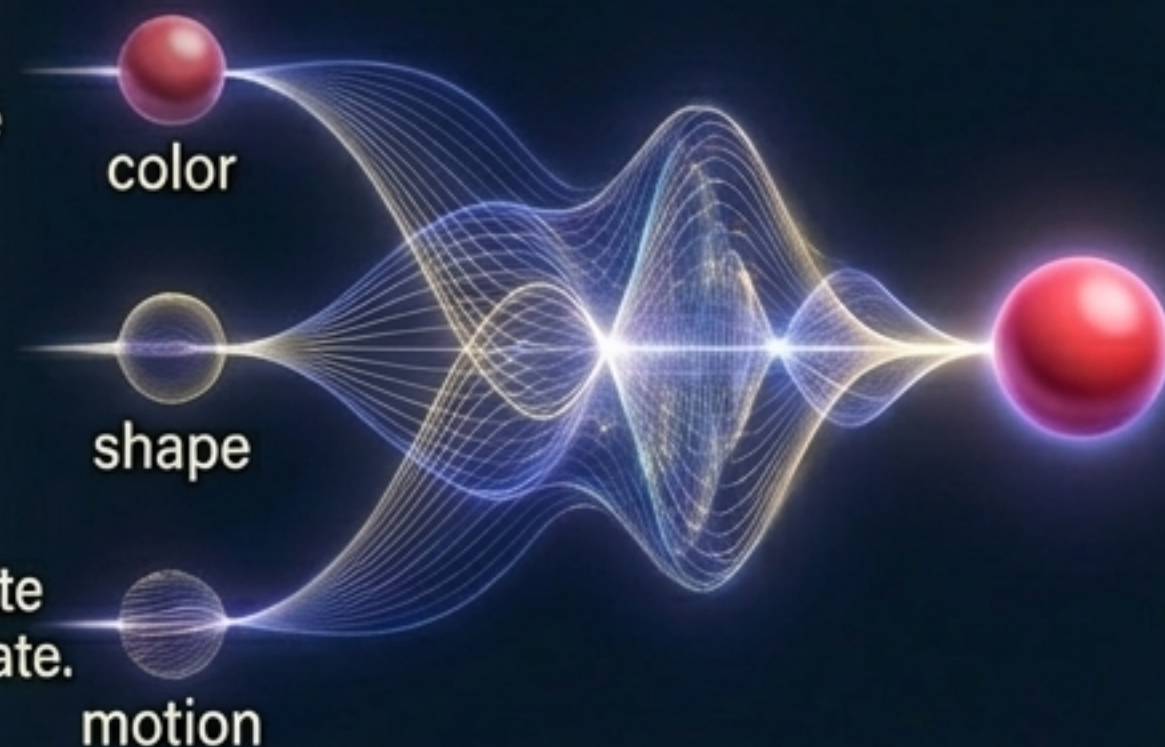
Binding by Superposition

The Solution

What classical neuroscience mistakes for *synchronous firing* of separate neurons is actually a succession of **ultra-rapid, quantum-coherent superpositions** of those same neurons.

Mechanism

1. Distributed feature-detectors enter a single, unified quantum superposition.
2. For a fleeting moment, they cease to be separate parts and become a single, irreducible physical state.
3. This unified state *is* the bound phenomenal object.
4. Decoherence rapidly "unbinds" this state, and a new superposition forms. Our conscious world is a stream of these frames, running at $10^{13}+$ frames per second.



Analogy: Our mind is not a classical computer. It is a quantum computer, and a phenomenally bound world-simulation is "what it feels like from the inside."

Answering the Critics: The Challenges to Idealism

The Argument from Microphysical Simplicity


Objection: "Electrons are simple (mass, charge, spin). How can they produce the richness of experience?"

Resolution: "We don't have a particle ontology; we have a quantum *field* ontology. The diverse textures of experience (qualia) correspond to the vast range of values of the fundamental quantum fields. "More is different.""

The Argument from Structural Mismatch

Objection: "The structure of my visual field doesn't look like the structure of my brain."

Resolution: "This mismatch is an artifact of our coarse-grained tools. We measure brain activity in milliseconds, but the real action happens at sub-femtosecond timescales. At that resolution, we predict a *perfect structural match* between the phenomenology and the quantum-coherent physical state."



Coarse-Grained
Measurement
(milliseconds)

Fundamental Reality
(sub-femtoseconds)

From Metaphysics to the Lab: A Falsifiable Prediction

The phenomenal binding of experience has a direct, detectable, physical signature: quantum coherence.

Step 1: TRAIN



Step 2: IDENTIFY



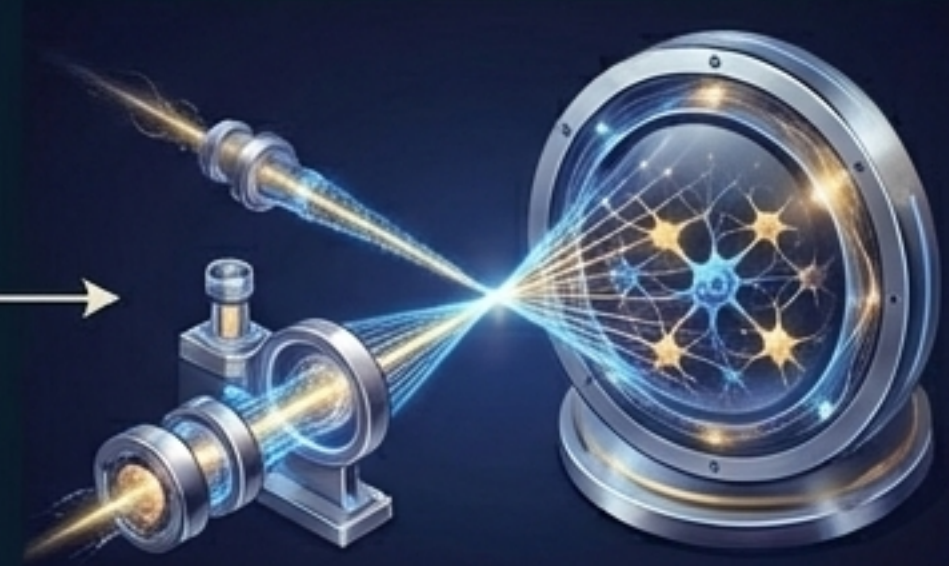
Step 3: PROBE



Use an *in vitro* neuronal network to recognize specific inputs (e.g., a simple shape).



Using classical methods, identify the distributed neurons that fire "synchronously" when the network recognizes the shape.



Use next-generation molecular matter-wave interferometry to probe the network at sub-femtosecond timescales.

The interference patterns detected will reveal a macroscopic quantum superposition that robustly implicates **all and only** the feature-mediating neurons identified in Step 2.

Two Futures for Physics: Noise or a Perfect Match?



What we find: Random quantum "noise."
The detected superpositions are functionally irrelevant, implicating random neurons, like fleeting superpositions of pawns in a chess game.

The Consequence: The "structural mismatch" is real. The conjecture is false. Physicalism fails, and science is left with dualism or an inexplicable mystery.

What we find: A perfect structural match. The non-classical interference signature corresponds exactly to the neurons involved in perceiving the object.

The Consequence: Binding-by-synchrony is revealed to be binding-by-superposition. Physicalistic idealism is experimentally supported. The Hard Problem is solved.

The Engine of Creation: Quantum Darwinism in the CNS

The Evolutionary Enigma:
"How could natural selection operate on fleeting, sub-femtosecond states?"

The Answer (via Wojciech Zurek):
"A Darwinian process of replication, variation, and selection occurs not just between organisms, but between the proliferating, decohering 'branches' of the mind-brain's wavefunction."

Mechanism:
"Superpositions that create a more stable, fitness-enhancing representation of the environment are inherently more robust and less prone to decoherence. They are 'fitter.' This selection pressure, operating at immense speeds, has sculpted our CNS to produce the coherent, classical-seeming world-simulations we experience."



The Horizon: Towards a Post-Galilean Science of Mind

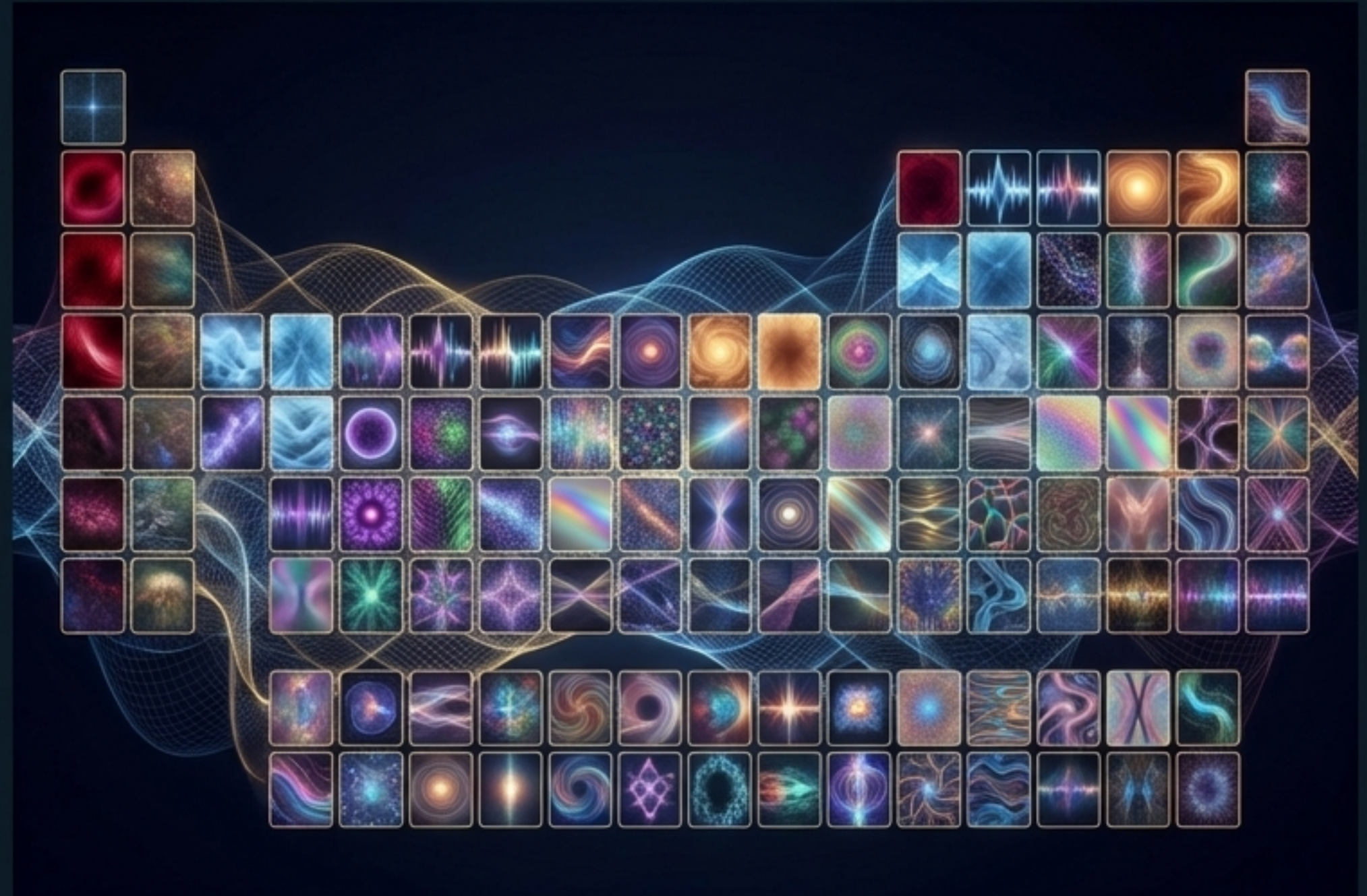
Avenir Next Pro

If the conjecture is true:

- **The Hard Problem is Solved:** Consciousness is the intrinsic nature of the physical.
- **The Explanatory Gap is Closed:** There is no gap, only a mistaken assumption.
- **Zombies are Banished:** A non-sentient world physically identical to ours is a logical impossibility.

A New Scientific Frontier:

- A complete science must map both the third-person (formal) and first-person (subjective) properties of reality.
- This requires a methodology that integrates the physics of the universal wavefunction with the systematic, first-person exploration of consciousness.



To create a 'Mendeleev Table for Qualia,' systematically mapping the state-space of possible experiences by understanding—and instantiating—the physical states that correspond to them.

The Resolution

1. **The Crisis:** Orthodox materialism renders consciousness impossible and cannot solve the Binding Problem, leaving us as inexplicable “zombies.”
2. **The Revolution:** We proposed a new ontology—Physicalistic Idealism. Physics describes the structure of a fundamentally experiential reality.
3. **The Solution:** Phenomenal binding is the subjective experience of quantum coherence. Our minds are a succession of ultra-rapid neuronal superpositions, a conjecture testable in the lab.
4. **The Future:** Vindicating this theory will unify physics and mind science, opening the path to mapping the full landscape of consciousness.



The existence of our own conscious minds is the most profound evidence.
The experiment will provide the proof.