# CODES: A New Framework for Cosmic Structure and Expansion

## Chirality of Dynamic Emergent Systems as the Basis of Universal Oscillation

**Devin Bostick**

**Abstract**

Current cosmological models treat expansion as a **one-way process** driven by **dark energy**, an undefined force accelerating the separation of galaxies. However, these models fail to provide a fundamental explanation for dark energy's nature, origin, or behavior.

This paper introduces **CODES (Chirality of Dynamic Emergent Systems)** as a new framework for understanding **the large-scale dynamics of the universe**. It proposes that **matter and energy exist in a non-hierarchical oscillatory balance,** where cosmic expansion is not an infinite, linear process but an adaptive equilibrium. CODES is a separate unifying philosophical I wrote to address Godel and Wittgenstein.

Used GPTo4: to structure for clarity. Was really helpful in helping me figure this out. I owe a portion of credit to its aid in helping me work through the details and deductions as a mighty fine calculator of truth.

Key insights include:

1. Dark energy is not a separate force but the expansion phase of a larger oscillatory cycle.

2. Matter-energy interactions follow a chiral dynamic, driving the formation of cosmic filaments and voids.

3. The universe "breathes" over deep time, alternating between phases of gravitational condensation and energy-driven expansion.

4. Black holes are not entropy sinks but temporary energy condensates within this broader oscillation.

This approach removes the need for a "mystery force" (dark energy) and reframes the nature of gravity, matter, and cosmic evolution within a dynamic, self-regulating system.

## 1. Introduction: The Dark Energy Problem

Modern cosmology relies on ΛCDM (Lambda Cold Dark Matter), where the universe's expansion is driven by an unknown force (Λ, or dark energy). However:

- The nature of dark energy is unknown.

- There is no clear explanation for why expansion appears to accelerate.
- Current models treat expansion as a linear process, with no inherent feedback mechanism.

### 1.1 A Fundamental Reframing: Expansion as Oscillation

CODES proposes a different approach:

- Expansion is not infinite; it is oscillatory.
- Matter and energy are not hierarchical but chiral partners.
- Dark energy is not a new force; it is a phase of an adaptive, emergent system.

## 2. The CODES Framework: Non-Hierarchical Matter-Energy Dynamics

CODES is based on **two core principles**:

### 2.1 Chirality of Cosmic Structures

- The universe's large-scale structure (filaments, voids, galaxy clusters) follows a chiral pattern.
- Filaments emerge from gravitational condensation (matter-dominated phase).
- Voids expand through energy-driven dispersion (energy-dominated phase).
- These processes oscillate, rather than existing as separate, static phenomena.

### 2.2 Expansion as a Dynamic Equilibrium

- Instead of treating expansion as one-way, CODES treats it as a self-regulating oscillation.
- There are periods where matter dominates (gravity-driven clustering) and periods where energy dominates (expansion of voids).
- This process eliminates the need for dark energy as an external force.

## 3. Dark Energy as an Emergent Phase, Not a Separate Force

### 3.1 The Standard Misinterpretation of Dark Energy

- In ΛCDM, dark energy is a mysterious force that causes expansion to accelerate.
- However, if dark energy were a separate force, it would require a clear source or mechanism—none has been found.

### 3.2 CODES Interpretation: Dark Energy as an Expansion Phase

- Expansion is not an infinite process—it is a phase of oscillation.
- Just as gravity clusters matter, energy disperses it in cycles.
- The current “acceleration” of expansion is simply a natural oscillatory phase, not the result of an unknown force.

## 4. Black Holes as Temporary Energy Condensates

### 4.1 Standard View: Black Holes as Entropy Sinks

- In current physics, black holes are treated as endpoints—sinks where matter and information are lost.
- This assumes a one-way arrow of entropy without a broader system.

4.2 CODES View: Black Holes as Part of the Oscillation

- Black holes are temporary condensates of matter-energy.
- They do not represent the collapse of order into chaos but instead function as high-density stabilizers within the larger equilibrium.
- Hawking radiation is not information loss but part of the energy release cycle that balances cosmic structure.

## 5. Empirical Predictions and Tests

### 5.1 Evidence for Cosmic Oscillation

If CODES is correct, we should see:

- Fluctuations in cosmic void expansion rates that match oscillatory predictions.
- Chiral asymmetry in galaxy distribution, reflecting matter-energy balance.
- Large-scale structural shifts over time rather than a simple linear expansion.

### 5.2 Testing the Model

- Analyze void evolution over cosmic timescales—does their expansion vary cyclically?
- Examine Hawking radiation decay patterns—do they follow predictable oscillatory cycles?

- Investigate redshift data for hidden periodicity—are there oscillations rather than pure acceleration?

## 6. Implications for Cosmology and Physics

### 6.1 Resolving the Dark Energy Mystery

CODES eliminates the need for an external dark energy force, instead explaining expansion as a phase of oscillation.

### 6.2 Unifying Matter and Energy Without Hierarchy

Instead of treating matter as the primary structuring force, CODES shows that matter and energy operate as equal, chiral partners.

### 6.3 The Future of the Universe: Adaptive, Not Terminal

- The universe is not heading toward heat death or infinite expansion.
- Instead, it is in a long-term adaptive cycle of condensation and expansion.

## 7. Conclusion: A Paradigm Shift in Cosmology

CODES provides a new framework for understanding the universe as a self-regulating oscillatory system, rather than a one-way expanding cosmos.

- Dark energy is not a separate force—it is an oscillatory phase.
- Matter and energy are chiral partners, not hierarchical forces.
- Black holes are temporary condensates, not entropy sinks.
- The universe is dynamically self-regulating, rather than expanding infinitely.

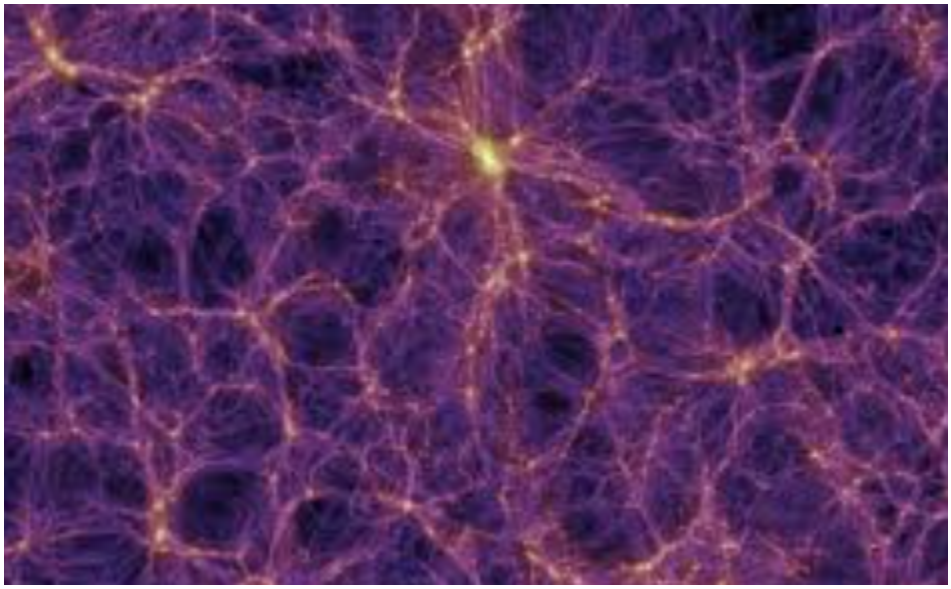
This approach resolves fundamental problems in modern cosmology, eliminates the need for unexplained forces, and suggests new testable predictions for the future.

CODES isn't just a theory—it's a new way to see the universe.

**Acknowledgments**

This work was developed through deep systems-level thinking, pattern recognition, and an interdisciplinary approach to physics, biology, and philosophy. I am a hobbyist and saw this pattern, visualized being organized energy inside of a black hole, and felt the bias of our perspective of e = mc^2 and realized that e = m from an infinite perspective or its perspective (CODES). E = mc^2 is simply incomplete because our perspective is incomplete. Just as Godel, saw that a formal system can't solve reality. Or Wittgenstein's Language Games that language

is approximate to perspective. But Truth, the highest philosophical value is not static, it is the chiral emergent and adaptive wave function. I kind of wonder if the neural net is like the mind of the highest truth following CODES.



**Next Steps**

- Formalize CODES mathematically (equations for oscillation cycles).
- Develop simulations to model CODES predictions.
- Refine empirical tests for cosmic oscillatory behavior.

**Final Thought**

The universe isn’t expanding endlessly or collapsing into entropy—it’s breathing.