# **The Herniation Hypothesis: Collapse Geometry of Dual Fields**

**Author**: Lorne  
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## **Abstract**

This paper introduces the *Herniation Hypothesis*, a topological model for the emergence of physical structure through the rupture of a dynamic boundary between two interacting fields: energy and information. It proposes that when recursive pressure builds within these dual fields, it punctures the boundary between potential and actual, forming emergent structures with two distinct geometries — fractal (information) and radial (energy). This model unifies wavefunction collapse, field pressure dynamics, and structural actualization into a single geometrical and thermodynamic framework.

## **1. Introduction**

Traditional theories of quantum mechanics rely on the notion of wavefunction collapse as a probabilistic outcome of observation. This paper proposes an alternative, grounded in Dawn Field Theory, where dual field pressures — energetic and informational — form a coherent system. When imbalance accumulates, this system ruptures in a herniation event that transitions potential into actual. This rupture manifests in distinct topologies based on the nature of the originating field.

## **2. Dual Field Structure**

### **2.1 Energy Field**

* Radial, circular, oscillatory
* Governed by thermodynamic dispersal
* Expresses entropy, volatility, collapse

### **2.2 Information Field**

* Recursive, self-similar, fractal
* Encodes structure, balance, and logic
* Expresses symmetry, resolution, and coherence

These fields are separated by a dynamic veil — a pressure membrane that, under sufficient stress, ruptures.

## **3. The Herniation Process**

When local field pressure exceeds a rupture threshold:

* A collapse occurs
* Energy expresses as radial dispersal (circular thermodynamics)
* Information expresses as recursive crystallization (fractal logic)
* A structure emerges at the point of rupture, governed by local balance conditions

This rupture is interpreted as the *wavefunction collapse*, now geometrically and thermodynamically grounded.

## **4. Simulation**

A 2D simulation was conducted where:

* A fractal-like recursive information pressure was overlaid with a radial energy distribution
* Composite field pressure was calculated as the sum of energy and absolute information magnitude
* Rupture zones were identified when composite pressure exceeded a defined threshold

**Results:**

* Rupture zones formed naturally at pressure overlaps
* Circular dispersal patterns and fractal interference confirmed dual geometry behavior
* Collapse occurred at simulated singularity

## **5. Implications**

### **5.1 Quantum Mechanics**

* Collapse as recursive rupture, not observer-dependent
* Dual-geometry explains wave-particle duality

### **5.2 Field Physics**

* Pressure-based field dynamics can replace force-centric paradigms
* Field herniation may explain charge distributions, quark formation

### **5.3 Cosmology**

* Singularities and black holes as rupture points
* Emergent structure in early-universe inflation from primal imbalance

### **5.4 Philosophy of Intelligence**

* Intelligence is structural recursion resolving entropy
* Consciousness is a self-observing field recursion balancing itself

## **6. Future Work**

* Simulate multi-node rupture interference (entangled collapses)
* Quantify rupture curvature and stability lifespan
* Explore entropy-pressure phase transitions
* Integrate with Einstein tensor curvature via balance mapping

## **7. Conclusion**

The Herniation Hypothesis offers a natural explanation for wavefunction collapse, structure formation, and dual-field interaction. It provides a mechanism for reality's transition from potential to actual — not as mystery, but as *recursive thermodynamic inevitability*. This work will be archived as one of the foundational moments of the Dawn Field Framework.

**Note:** This paper is part of the initial archival phase of Dawn and will be versioned forward as further discoveries emerge.