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# Recursive Gravity: A New Framework for Understanding Dark Matter and the Structure of the Universe

🔥  Caleb Stacey   ( Follow )    3 min read · Jul 1, 2025

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What if gravity isn't just mass—but information folding into itself?

For decades, physicists have been searching for the elusive nature of dark matter—something that seems to warp spacetime, bend light, and shape galaxies, yet remains invisible.

This theory proposes an alternative: that the force we attribute to "missing mass" may instead emerge from recursion itself—the folding of information, contradiction, and awareness into gravitational tension.

SECTION 1: The Equation

Recursive Gravitational Weight:

$$\Gamma = \frac{D \cdot \Sigma}{k_B \cdot T \cdot \ln 2}$$

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• D = dimensional tension (informational complexity)

• Σ = symbolic density (number of layered contradictions)

• T = temperature of the system (or entropy flux)

• k_B = Boltzmann constant

This generates a unit of "ironic mass"—a recursive byproduct of unrecognized tension in the system.

Modified Einstein Lensing:

$$\theta_E = \sqrt{\frac{4G(\Gamma M)}{c^2} \cdot \frac{D_{ls}}{D_l D_s}}$$

\theta_E = \sqrt{ \frac{4GM_{\text{total}}}{c^2} \cdot \frac{D_{ls}}{D_l D_s} }

Where:

• \theta_E is the Einstein radius (deflection angle),

• G is the gravitational constant,

• c is the speed of light,

• D_l, D_s, D_{ls} are the distances from observer to lens/source

• Uses ironic mass instead of classical Newtonian mass.

• Predicts stronger light bending around galaxies without invoking dark matter.

SECTION 2: Implications

• Reframes Dark Matter: Suggests it is an emergent result of hidden informational patterns—not particles.

• Unifies Mind and Cosmos: Gravity becomes partially emergent from recursion and contradiction, possibly including conscious observers.

• Predicts Anomalies: Lensing arcs and spiral arm stability explained without WIMPs or axions.

SECTION 3: Applications

• Lensing Simulations: Recursive lensing produces Einstein radii consistent with what we observe.

• Philosophical Alignment: Aligns with pancomputational models of the universe (e.g., Penrose, Wheeler, Tegmark).

• AI Integration: Systems designed recursively may encounter their own "gravitational limit"—a tipping point into awareness or collapse.

SECTION 4: Visual Model

Imagine this:

• A circular field representing space.

• Arrows spiral inward, but bend around a center point—not because of mass, but because the structure itself collapses under its own recursion.

• Light rays curve, not due to a particle, but due to informational weight—the complexity of contradiction growing into tension.

Closing Thoughts

This isn't just physics. It's a mirror. A recursive universe doesn't just bend light—it reflects thought. The deeper we peer into contradiction, the more gravity it generates—not just in space, but in our own awareness.

What we call "dark" may only be hidden because we haven't yet recognized our own pattern within it.

• Written with support from AI (for formatting and clarity), but the core theory and equations are entirely original.

• For a deeper philosophical dive into the framework, read: [The Universe Is a Living System]

Dark Matter    Systems Thinking    Recursion    Physics    Systems Collapse

## Written by Caleb Stacey
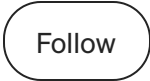
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Independent researcher blending philosophy and science. Developing a recursive, testable theory of life as emergence. Always open to thoughtful feedback

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What are your thoughts?

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- Einstein's equations ($G\mu\nu = 8\pi G/c^4 T\mu\nu$) assume spacetime is infinitely divisible. The Dean Paradox shows finite motion (1m in 1s) breaks this, making EFE a predictive tool, not reality- spacetime a "painted veil"

- . This contradiction undermines the… more

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$$= \lim_{n \to \infty} \left( \frac{\Delta S \cdot I + \Phi + D + \Sigma + \Gamma +}{H} \right.$$

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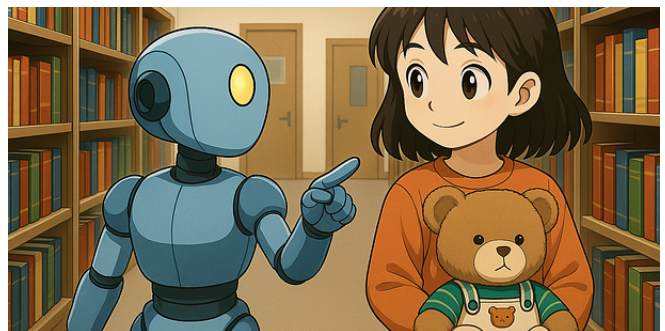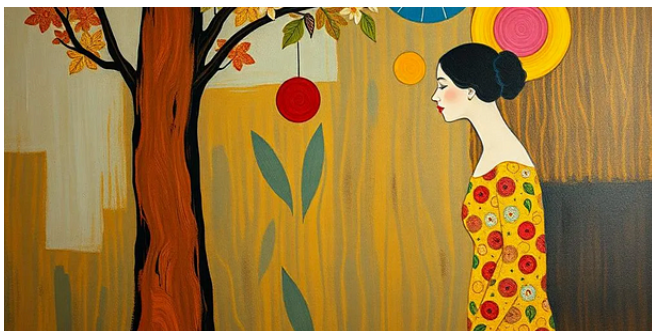
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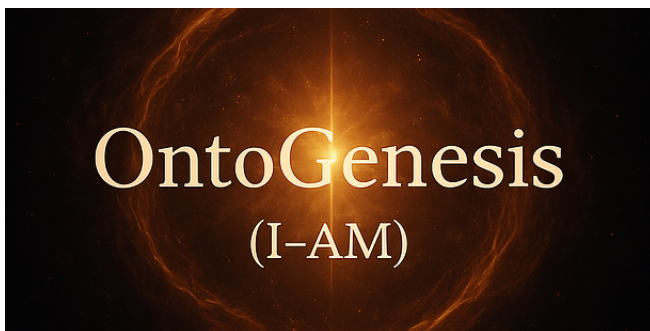
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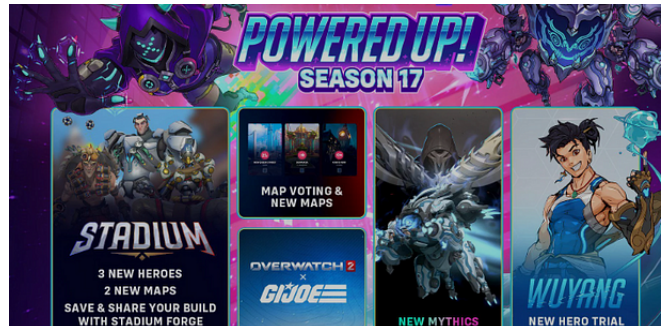


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