

Technical Note

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Technical Note

Clarifying Observer-Relative Cosmological GUT Curvature from Dissipative Scale Evolution: External Flatness and Internal Einstein Limits in Forced High Energy Noise Limits

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Abstract

We state a compact priority result within Newell’s Unified Scientific Framework (USF): when dissipative scale evolution is retained as a first-class component of the dynamics (the omni-term), spacetime curvature need not be treated as a fundamental primitive of the external (meta-dynamical, scale-space) description. Instead, curvature arises as an observer-relative effective structure induced by projection onto internal spacetime coordinates (clocks, rulers) and by boundary/coarse-grained reductions. In the internal limit where the scale-flow is suppressed, integrated out, or treated as an effective closure, Einstein-type curvature language is recovered as the appropriate representation of the projected dynamics. The framework therefore distinguishes gravity-as-mechanism (dissipative entropy-driven evolution) from curvature-as-representation (observer-embedded geometry), while preserving standard relativistic phenomenology in the internal description.

Keywords: emergent gravity; entropy; dissipation; scale flow; renormalization group clock; observer-relative curvature; effective geometry; unified scientific framework; forced GUT; Newell’s Framework

1. Priority Statement and Scope

This short communication is published to establish priority for a specific interpretive and structural claim within the Unified Scientific Framework (USF) [1]. The result concerns the status of spacetime curvature when dissipative scale evolution is treated as a primary dynamical ingredient.

We emphasize that “external” and “internal” refer to *levels of description*, not to a physical observer located outside the universe. “External” denotes a meta-description in which the fundamental evolution parameter is a logarithmic scale/entropy coordinate (an RG-clock), while “internal” denotes the operational description available to observers embedded in spacetime who necessarily employ spacetime coordinates, clocks, and rulers.

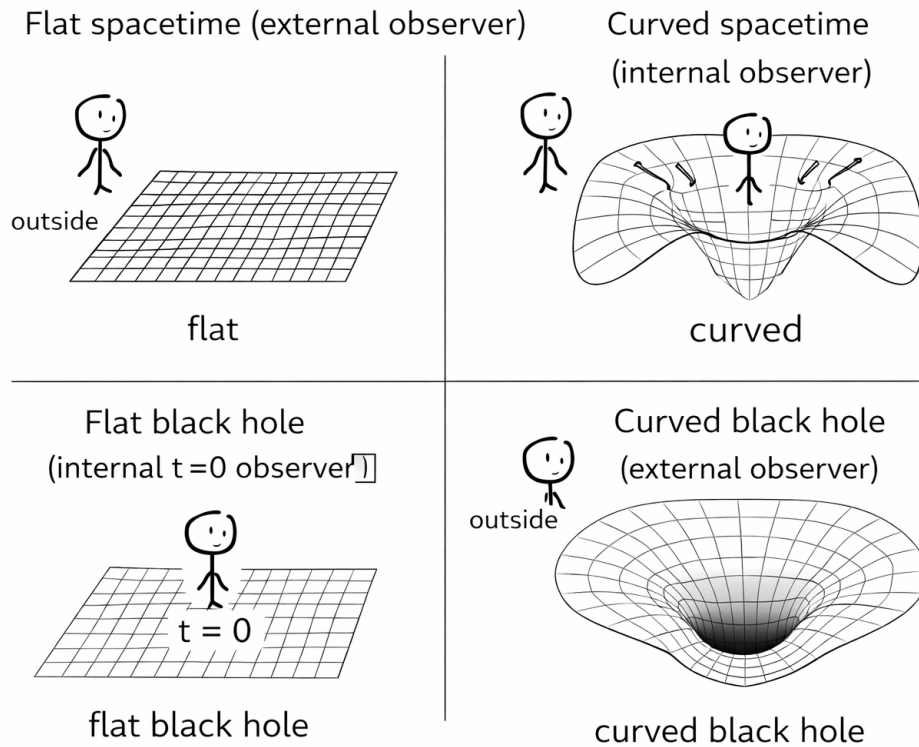


Figure 1. Four-panel schematic contrasting external (scale-space) flatness with internal observer curvature, and the corresponding black-hole representations in the proposed framework.

2. Claim: Curvature Is Not Fundamental in the External Description

Within USF, the fundamental evolution is formulated as entropy-controlled scale flow, with dissipation retained explicitly (the omni-term) [1]. In this representation, the bulk dynamics do not require intrinsic spacetime curvature as a primitive object. Instead, the organizing structure is dissipative evolution along the scale/entropy coordinate toward a balance manifold. In the external formulation, “flatness” should be read as follows:

Flatness is the absence of fundamental curvature-primitives in the external scale-space description when dissipation is explicit; it is not a denial that internal observers can measure curvature.

Operationally, the claim is that curvature contributions are dynamically suppressed in the approach to balance under the external scale-flow dynamics, so curvature is not the mechanism of evolution; dissipative entropy-driven scale evolution is [1].

3. Emergence: Curvature Appears for Internal Observers via Projection

Internal observers parameterize physics using spacetime coordinates x^μ and local measurements. When the external scale-flow dynamics are *projected* into an internal spacetime description, and/or when one imposes boundary conditions or coarse-grains to reduced sectors, residual geometric structure appears. In that internal representation, curvature becomes the natural effective encoding of the projected dynamics, and Einstein-type closure relations arise as the appropriate internal limit [1]. Symbolically, one may write the internal effective description in the familiar form

$$G_{\mu\nu} \approx 8\pi G T_{\mu\nu}, \quad (1)$$

with the understanding that this relation is *internal and effective*: it applies after projection/coarse-graining has selected a geometric representation in which curvature is the convenient bookkeeping language for the same underlying dissipative evolution [1].

Thus, the framework supports a strict separation:

- **Mechanism (primary):** dissipative entropy/scale evolution drives dynamics in the external description;
- **Representation (effective):** curvature arises as an observer-relative geometric encoding in the internal description.

4. Interpretive Consequence: Why Relativity is Inevitable

Relativity is strengthened, not weakened, in this formulation. Because internal observers describe projected dynamics using coordinate-dependent measurements, the induced geometric representation (and its curvature) is necessarily observer-relative. Different internal frames correspond to different projections of the external flow. The external description supplies the representation in which curvature is not fundamental; the internal description supplies the representation in which curvature is the correct effective language for embedded observers [1].

5. Conclusion

We have stated a compact priority result within USF: with dissipative scale evolution retained explicitly (the omni-term), spacetime curvature is not fundamental in the external (scale-space) formulation, while curvature emerges as an observer-relative effective structure under projection to internal spacetime coordinates and reduced representations. Einstein-type curvature language remains valid internally as an effective closure of the projected dynamics, while the external formulation treats entropy-driven dissipation as the primary mechanism [2].

Conflicts of Interest: The author declares no known conflicts of interest.

References

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