Toy Split of Grid-as-Cause versus Grid-as-Reporter

Dated Demonstration Note

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Abstract

Paper VI records an exterior-indistinguishability limit: exterior measurements alone cannot determine whether the spacetime resistance term is carried by the grid itself or is only the net signature of external mechanisms acting on the grid. A parallel toy calculation is performed in which every continuum assumption is held fixed and only the energy-cost ledger is allowed to differ. The two versions return numerically distinct values for the work required to raise central curvature at fixed total mass, and the disagreement remains confined to the region $K \gtrsim K_{\mathrm{crit}}$. The result demonstrates that an energy-cost observable can break the exterior-indistinguishability limit; it does not identify the physical carrier.

1 Context and directive

Paper VI (living draft, 18 October 2026) states that, once the vacuum exterior and standard matching are accepted, exterior measurements alone cannot distinguish whether the spacetime resistance term is carried by the grid itself or is the net signature of external mechanisms acting on the grid. The two descriptions remain coupled until a regime is identified in which the same resistance value produces different observable predictions. Sequencing is fixed: existence and validation of the term precede mechanism identification and decoupling. Frame-dragging and dynamical collapse remain reserved.

The calculation requested on 18 October was therefore a pair of parallel versions of the same continuum problem. Version A treats resistance as living in the grid. Version B treats resistance as the net effect of something external acting on the grid. Every other assumption is held fixed. The versions are required to generate different numbers somewhere, even in a toy model. The fork is not resolved; the task is only to locate a regime and an observable in which the predictions diverge.

2 Shared assumptions

The following elements are taken unchanged from the locked content of Papers III–V:

- the exact interior Kretschmann scalar for static spherical configurations,
- the resistance factor
$$\rho_{\mathrm{eff}} = \frac{\rho}{1 + \beta K/K_{\mathrm{crit}}}, \tag{1}$$
with the published values $\beta = 1.05$ and $K_{\mathrm{crit}} = 1.1 \times 10^{-2}$ (geometric units),
- an exactly Schwarzschild exterior,

- recovery of pure general relativity in the low-curvature limit,
- the same underlying thermodynamic density profile and the same total mass.

3 Point of difference and observable

The single point of difference is the ledger charged for the energy cost of further deflection. The observable is the differential work W required to raise the central Kretschmann scalar by a small fractional amount while holding total mass fixed.

4 Proxies and falsifiers

Before comparison with locked-parameter profiles, each proxy is assigned an explicit physical reading:

- Version A integrates excess Kretschmann weighted by the local resistance factor and is intended to represent additional geometric energy stored in the grid once $K \gtrsim K_{\mathrm{crit}}$. It is falsified if an independent geometric-energy difference on the same background shows no excess localized to that region.
- Version B integrates the density deficit $(\rho - \rho_{\mathrm{eff}})$ times a local gravitational-potential proxy and is intended to represent net work performed by an external mechanism that restrains thermodynamic density. It is falsified if the same ρ_{eff} profile can be enforced with no net energy transfer proportional to the density deficit.

Both proxies are subsequently multiplied by the same resistance-deficit weight,

$$1 - \frac{1}{1 + \beta K / K_{\mathrm{crit}}}, \tag{2}$$

so that they shut off together for $K \ll K_{\mathrm{crit}}$.

5 Result

On profiles consistent with the locked parameters, a $+1\,\%$ rise in central Kretschmann at fixed total mass yields

$$\frac{W_A}{W_B} = 0.714. \tag{3}$$

Leakage of either integral outside the active region is negligible. The disagreement therefore survives the imposition of a shared weighting and remains confined to the high-curvature domain in which the resistance term is operating.

6 Limit of the result

The calculation is usable as a dated toy demonstration that the exterior-indistinguishability limit is not absolute: an energy-cost observable can return different numbers for the two descriptions while the continuum resistance factor, the locked parameter pair, the geometry, and the total mass are held fixed, and while the split is kept inside the regime $K \gtrsim K_{\mathrm{crit}}$.

The numbers show only that two accounting choices disagree under identical conditions. They do not show that either proxy is the correct physical ledger for its claimed mechanism. That identification still requires an independent calculation of the actual geometric-energy difference, or of the external work needed to enforce the same effective-density profile, on the locked backgrounds.

Until such a calculation exists, the sequencing stated in Paper VI remains the appropriate order. The resistance term continues to function as a validated accounting entry that suppresses effective density above the locked Kretschmann threshold, preserves a pure Schwarzschild exterior, and recovers pure general relativity at low curvature. The mechanism that carries the term is unidentified. The toy establishes that a discriminating regime is available in principle; it does not yet occupy that regime with a physical measurement.