

Apeiron Publication Gap Report - v1.5 Causality Consolidation

Date: 20 September 2026

Closed / publication-ready additions

- Emergent-light-speed / causality branch: FEASIBILITY_G0.
- Preferred interpretation: universal c is a property of the emergent universe causal structure, not classical photon slowing by a refractive Apeiron medium.
- Effective one-geometry / universal-cone construction is consistent as a minimal model.
- Existing σ - θ - χ micro-EFT: MICRO_CONE_PASS_AT_TREE_LEVEL around the tested static Frozen vacuum.
- A separate universal fundamental c_A is not required by the minimalist construction.
- Local finite-response / no-instantaneous-global-reorganization toy structure is feasible.

Remaining causality gap

- FUNDAMENTAL_LORENTZ_ORIGIN_OPEN: no first-principles derivation yet explains why deeper Apeiron dynamics necessarily yields Lorentzian structure.
- Universal mono-metricity is feasible at effective level but not microscopically derived.
- No complete quantum-gravity derivation.
- No prediction of the SI numerical value of c .

Other previously open gaps unchanged

- physical nonlocal response kernel;
- independent mediator pole / unique M_S determination;
- quantitative generalized-second-law-like entropy balance;
- empirical discriminants and observational confirmation.

No frozen earlier physics was recomputed or reclassified in this publication update.