Apeiron

APEIRON - Current Project Documentation v2.6

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1. Binding principle

Apeiron is one fundamental carrier. Ordinary matter, dark-matter-like gravitational phenomena, dark-energy-like large-scale behavior, and any later validated structures are modeled as possible states, organizations or manifestations of the same carrier.

This is a model ontology, not an empirical detection claim.

2. Ordinary matter

Baryonic matter is treated as an organized/emergent Apeiron manifestation. Standard-Model physics is retained.

3. Dark matter

Within Apeiron, dark matter is not fundamentally separate matter. The dark gravitational phenomenology is interpreted as a possible manifestation/state of Apeiron. Unknown particles are not excluded experimentally; if found, they can be incorporated as additional organized manifestations of the same carrier.

4. Dark energy

Large-scale accelerating behavior is interpreted as a possible state/ dynamical manifestation of the same carrier. No separate ontological substance is required by the model.

5. QCD / Higgs branch

The branch investigates a possible deeper common origin of Higgs-sector and nonperturbative QCD/binding dynamics. QCD remains SU(3), color symmetry is not replaced, and established structures remain operative. The Apeiron relation is a hypothesis.

6. Black-hole reconversion

Extreme black-hole curvature is treated as a possible conversion region in which organized Apeiron manifestations can return toward more fundamental Apeiron states. The structural feasibility test is GO. This means a consistent effective class exists; it does not mean the process has been observed.

Minimal effective variables: - organization state: 0 <= s <= 1 - local state law: u^mu nabla_mu s = - Gamma_rec C(K) s - one conserved total stress tensor: nabla_mu T_AP^(mu nu) = 0 - smooth local curvature-response variable K

7. Thermodynamics, information and reconversion

Within the Apeiron framework, black holes and conversion regions are not interpreted as sinks in which information, energy, or physically relevant entropy disappear from the total system.

The sequence

access region → conversion region → directed phase return to Apeiron

is modeled as a transition between different physical organizations of the same underlying Apeiron system.

Observable matter degrees of freedom entering the conversion region are therefore assumed to be transformed into, or re-encoded within, Apeiron degrees of freedom. Energy and information are not postulated to be destroyed in this process.

Information conservation and entropy conservation are not identified with one another. The framework does not require the total entropy of the complete Apeiron system to remain constant. Entropy may be produced, redistributed, or transferred into Apeiron degrees of freedom during reconversion. The essential assumption is that physically relevant entropy is not simply erased by the phase transition.

The same distinction applies to Genesis. A newly formed observable matter phase may begin in a comparatively low-entropy state without requiring a decrease, erasure, or reset of the entropy of the complete Apeiron system. Entropy may remain stored, distributed, or reorganized within the larger Apeiron sector while the emergent observable phase occupies a lower-entropy configuration.

Accordingly, the Apeiron framework treats reconversion and Genesis as transformations within one larger physical system rather than as processes requiring the destruction or spontaneous resetting of information or entropy.

These statements are assumptions of the Apeiron framework. They are not presently claimed as experimentally established properties of black holes, quantum gravity, or cosmological phase transitions.

Remaining thermodynamic gap. A quantitative entropy balance, including a generalized-second-law-like consistency test across observable and Apeiron degrees of freedom, has not yet been produced and remains open.

8. Genesis and cycle interpretation

Genesis is treated as an emergent phase transition within the same larger Apeiron system, not as an entropy reset. A newly formed observable matter phase may occupy a comparatively low-entropy configuration while entropy remains stored, distributed, produced or reorganized in Apeiron degrees of freedom. Reconversion closes the conceptual cycle as an internal phase return rather than a sink or destruction process.

This is a model assumption only. A quantitative entropy ledger for the full cycle, including a generalized-second-law-like test, remains open.

9. Numerical foundation

The frozen v7.13 HARD-PASS and adjacent NONPASS remain unchanged historical/numerical results. Their evidence boundaries remain exactly as documented. Current ontology does not retroactively convert numerical gate compliance into empirical evidence.

10. Research-status rule

Historical/frozen checkpoints remain immutable. Current-facing summaries, preprints and homepages use the single-carrier interpretation. All empirical claims require separate quantitative predictions and data tests.

11. Motto

ALLES KOMMT WIEDER.