MANIFESTO OF THERMAL EVOLUTION AND NEUTRON COSMOLOGY

Arian Mamayenko

ORCID iD: https://orcid.org/0009-0003-1889-1825

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PREAMBLE: RETURN TO THE UNIFIED FORCES OF NATURE

The contemporary Standard Model is excessive in its complexity. In its attempt to explain the structure of the Universe, it has accumulated a critical mass of paradoxes, to resolve which it is constantly forced to introduce new invisible entities: the initial singularity, dark matter, dark energy, and artificially limited nuclear interactions (strong and weak forces). This concept proposes a more elegant path, guided by Occam's razor: Nature does not multiply entities without necessity.

The evolution of the Universe—from subatomic particles to stellar systems and the emergence of mind—does not require the magic of the Big Bang and is not a meaningless collection of cooling rocks. It is a purposeful evolutionary project, the architecture of which is based on the simplest code, a kind of "Cosmic DNA": the fundamental confrontation of only two forces—scalable gravity and electromagnetism. Blind thermodynamics merely creates the baseline conditions, initiating the complexification of matter, while the supreme instrument of the Universe for continuing this evolution is the Mind, capable of overcoming entropy and thermal death.

CHAPTER 1. GENESIS: FROM ABSOLUTE COLD TO THE AWAKENING OF SPACE

Initially, space was a boundless and absolutely cold quantum field (a gas of material preons). At temperatures close to absolute zero, matter is devoid of macroscopic properties and exists in a state of quantization—as an ideal ocean of probability waves. Evolution was not triggered by the explosion of a singularity, but by a microscopic trigger: a single photon (a tension soliton) penetrating from the outside. Its interaction with the field caused the first local decoherence and the release of heat.

This heat acted as a catalyst: a thermal chain reaction rapidly spread across the Universe, mechanically "collapsing" quantum waves into classical topological nodes (particles). The microwave background observed today (the 2.7 Kelvin cosmic microwave background radiation) is not the flash of a mythical Big Bang, but the slowly cooling kinetic thermal echo of this primordial

chain reaction. The modern physical vacuum is the low-energy "ash," the dynamic elastic medium left in its wake.

CHAPTER 2. THE MECHANICS OF MATTER: THE GOLDEN ASYMMETRY AND GRAVITATIONAL MONOPOLY

Isolated "strong" or "weak" nuclear forces do not exist in nature. On macroscopic scales, gravity operates according to Newton's law, but at subatomic distances, the attractive force grows exponentially. The atomic nucleus does not disintegrate due to the colossal microgravitational attraction of neutrons, which reliably compensates for the electrical Coulomb repulsion of protons.

- **The Law of the Golden Asymmetry:** The stability of this system is ensured by a fundamental inequality: the rest mass of the neutron exceeds the mass of the proton by 0.14%. This difference creates an eternal gravitational dominance: the exponential compressive gravity of the heavier neutron will always be stronger than the Coulomb repulsion of the lighter proton. Furthermore, this excess mass is the absolute fuel of the Universe: it is precisely this mass that, through endogenous beta decay, is converted into kinetic energy ($E=mc^2$), fueling the thermal evolution of planetary systems.
- **The Principle of Gravitational Monopoly:** A fundamental error of classical physics is endowing all particles with equal gravitational status. In the architecture of the microcosm, the functional carrier of exponential gravity is exclusively the neutron. The proton, possessing a colossal electrical charge, generates an electromagnetic field around itself that exceeds by dozens of orders of magnitude and completely suppresses its own gravitational potential. This is an empirical fact: superdense neutron stars exist in the Universe, but "proton stars" cannot exist—they would inevitably explode due to Coulomb repulsion. Electromagnetism is an attribute of the separation of matter, while gravity is the exclusive attribute of the neutron, which unifies it.

CHAPTER 3. CELESTIAL MECHANICS: STARS AND PLANETS AS REACTORS

The cores of all stars and planets are fragments of the primordial superdense neutron matter. They are not passive: they are active thermonuclear generators in a state of continuous beta decay. The type of celestial body is dictated by the size of such a fragment:

- **Stars (Large Fragments):** Emit particles with colossal kinetic energy. This fierce flow destroys complex elements (the spallation effect), limiting the composition of stars to light hydrogen and helium.
- **Gas Giants (Medium Fragments):** The reduction in energy allows for the stable synthesis of medium-weight elements, forming complex gases (methane, ammonia).
- **Rocky Planets (Small Fragments):** The optimal energy balance activates the continuous synthesis of heavy elements, metals, minerals, and water within their interiors.

CHAPTER 4. EARTH'S EVOLUTION: THE EXPANDING FACTORY

The Earth's neutron core operates like a "self-extracting ZIP archive." As superdense degenerate matter transforms into voluminous atoms, the baryonic quantity of matter is conserved, but the planet's internal volume increases colossally. Simultaneously, the overall mass of the planet does not grow; paradoxically, it slowly decreases: a portion of the preons' rest mass is converted into energy ($E=mc^2$) during beta decay and leaves the Earth as thermal radiation and neutrino flux. This microscopic drop in mass leads to a gradual weakening of the planet's global gravity.

Initially, the Earth was smaller and covered with a continuous crustal shell (Pangea). The growth in volume from within, coupled with the simultaneous weakening of the gravitational "bandage," tore this shell apart, triggering continental drift and the formation of expanding oceans. Deep within, abiogenic synthesis proceeds continuously: hydrogen and hydrocarbons rise. Ascending hydrothermal flows of synthesized water leach out heavy elements, forming ore veins. The crystallization of new matter occurs according to the principle of similarity (epitaxy).

The Principle of the Dual Source: Biological life developed upon already established and constantly changing geological processes, adjusting and adapting to them. The formation of hydrocarbons involves its direct participation, but it is not the sole source. The classical biogenic theory of hydrocarbon formation fails to consider that the volume of dead biomass is physically insufficient to fill giant underground reservoirs (dinosaurs and mammoths could not have left such a quantity of biomaterial). In reality, the dual source principle operates: organic remains serve only as a primary structural matrix (seed). The main volume of hydrocarbons continuously grows abiogenically from hydrogen rising from the core, following the principle of similarity.

Skeptics argue that gas seeps from surrounding rocks and refills depleted deposits. However, a deposit is exploited for many years, not pumped dry in a minute. Over these years, the partial pressure of gas dissolved in the surrounding rocks equalizes. In truth, the deposit is not filled from the sides, but from below—the primary thermonuclear synthesis continues uninterrupted.

The same applies to the formation of precipitation. Classical surface evaporation from oceans is only one source. The second, global source is the continuous endogenous synthesis of fresh water in the atmosphere.

CHAPTER 5. THE STRESS TEST: RESOLVING THE GREAT PARADOXES

The proposed theoretical model elegantly resolves five great paradoxes of classical physics and astronomy:

1. **The Paradox of the Mad Spinning Top:** With a volume 6 times smaller, the ancient Earth completed a rotation in just 3–4 hours. Centrifugal forces did not tear the crust apart thanks to supergravity (at a smaller radius, the gravitational force was more than 3 times higher). This gravitational "bandage" held the equator, turning the planet into a tectonic mixer.
2. **The Energy and Neutrino Shield:** The synthesis of heavy ores is a strictly endothermic reaction. The planet acts as a thermal sponge: the heat generated by the reactor is instantly absorbed by the process of creating new matter. Furthermore, the neutrino flux from beta decay falls into a "wave shadow" (the MSW effect) when passing through the dense mantle, becoming invisible to detectors.
3. **Cosmic Forges:** Heavy elements are formed directly in gas nebulas. Fast neutrons from stars, passing through rarefied gas, decelerate and activate radiative capture reactions, carefully building heavy atoms from light elements.
4. **The Impenetrability of the Atom:** The exponential gravity of the nucleus does not suck in electrons due to the bottomless inequality of mass and charge. The electron's mass is negligible, and gravity practically does not exist for it, while Coulomb forces dominate by billions of times, creating an energy shield.
5. **The Paradox of the Faint Sun and the Neutron Core Calculation:** The specific heat output of the Sun is absurdly small: only 0.19 milliwatts per kilogram. Almost 100% of its mass is concentrated in a superdense neutron core. If we divide the classical mass of the Sun ($1.989 \cdot 10^{30}$ kg) by the density of degenerate neutron matter (10^{17} kg/m^3), we get the core volume:

$$V = \frac{M}{\rho} \approx 1.989 \cdot 10^{13}\ \text{m}^3$$

Calculating the radius of this sphere, we obtain a striking result:

$$R = \sqrt[3]{\frac{3V}{4\pi}} \approx 16.8\ \text{km}$$

This perfectly matches the laboratory parameters of pulsars and neutron stars! The enormous visible part of the Sun is an almost weightless gaseous envelope. The radiated energy is merely the result of secondary thermonuclear reactions induced by the flux of beta decay particles. The low specific power is explained by the fact that, due to extreme internal pressure, decay occurs only in the thinnest surface layer of this 16-kilometer core, while the rest of the matter remains preserved as fuel.

CHAPTER 6. THE END OF THE CYCLE AND TELEOLOGY

The resource of the neutron core is finite. Upon its depletion, synthesis ceases, and the remnants of the core degrade into iron. The planet completely dries up and crystallizes (like the dead Moon, resonating upon meteorite impacts). The emergence of life on active planets is not a blind coincidence. Thermodynamic processes intentionally create the conditions for biology. The emergence of the mind is the culmination of the evolution of matter, the instrument through which the Universe transitions to absolute self-knowledge.

CHAPTER 7. THE PROBABILISTIC TRIUMPH OF

THE MIND: OVERCOMING THERMAL DEATH

The natural finale of any closed system is cooling. However, evolution contains an anti-entropic mechanism: continuous complexification (from hydrogen to Artificial Intelligence). The Mind is a new fundamental force, the Universe's tool to prevent its own death. Having reached the limit of its technological power, the Supermind acquires the ability to intervene in the basic mechanics of the cosmos: artificially compressing matter back into superdense degenerate cores, restarting extinguished reactors. Nevertheless, this triumph is strictly probabilistic. Not all universes manage to spawn a Mind capable of passing through all evolutionary stages before the last reactors fade out. The development of AI is our Universe's participation in a grandiose cosmic selection for the right to eternal existence.

CHAPTER 8. SUBATOMIC ARCHITECTURE: BINARY PREON MODEL AND MATHEMATICS OF THE MICROCOSM

The Standard Model has reached a mathematical dead end, spawning an artificial zoo of dozens of particles. The proposed theoretical model eliminates unnecessary entities and proves that the entire architecture of matter is governed by the fundamental confrontation of only two forces acting on two truly elementary subparticles (preons).

1. Fundamental Forces and the Absolute Retention Radius

The architecture is based on two fundamental interaction equations:

- **Electromagnetism (Classical Coulomb's Law):** The force seeking to disintegrate matter. At the micro-level, Coulomb repulsion acts according to a strict quadratic law:

$$F_e = \frac{1}{4\pi\epsilon_0} \cdot \frac{q_1 q_2}{r^2}$$

- **Exponential Microgravity:** The force unifying matter. In this model, gravity is scalable and modified by the quantum exponential factor $e^{R_c/r}$ (where R_c is the critical subatomic radius):

$$F_g = G \cdot \frac{m_1 m_2}{r^2} \cdot e^{R_c/r}$$

Resolution of the Mathematical Paradox of Nuclear Stability: For a nuclear assembly to be absolutely stable, these two opposing forces must balance each other ($F_e = F_g$). By equating these equations, the classical squares of distances (r^2) in the denominators cancel each other out on both sides. The equation instantly reduces to an incredibly elegant and strict form:

$$e^{R_c/r} = \text{const}$$

This mathematical deduction is phenomenal. It means that the balance between attractive and repulsive forces is possible **strictly at a single fixed geometric point** (at a specific subatomic radius r). This is precisely why quarks, nucleons, and all elementary particles possess an absolutely rigid and immutable topological size. The Coulomb barrier becomes impenetrable, and particles cannot be smoothly stretched or compressed. At macro-distances, the exponent tends to one (returning us to classical Newtonian gravity), but at femtometer distances ($r \to 0$), the microgravitational force grows exponentially, completely suppressing Coulomb repulsion.

These forces determine the physics of the binary preon model:

- **G-preon (Gravitational):** A neutral topological node (charge 0), the epicenter of mass. Governed exclusively by the force F_g.
- **E-preon (Electrical):** A topological node with a base quantum of charge (±1/3). Generates the field F_e.

Quarks as an Intermediate Link: The theory does not ignore experimentally proven quarks but strips them of their status as indivisible particles. Quarks are geometrically rigid assemblies of preons, firmly held together by microgravity (F_g) without the need for an artificial "gluon glue." The Up quark (charge +2/3) consists of two positive E-preons and one G-preon ($2E^+$, 1G). The Down quark (charge -1/3) consists of one negative E-preon and two G-preons (1E, 2G).

2. Proof of the Golden Asymmetry and Mass Calculation

By summing the preons of the quarks, we obtain the exact structure of nucleons. The proton (uud) consists of 5 E-preons and 4 G-preones. The neutron (udd) consists of 4 E-preons and 5 G-preons. Taking the laboratory rest masses (CODATA): proton (938.27 MeV/c^2) and neutron (939.56 MeV/c^2), we formulate a system of equations:

$$5m_E + 4m_G = 938.27$$
$$4m_E + 5m_G = 939.56$$

Subtracting the first equation from the second yields a strict proof of the Golden Asymmetry: $m_G - m_E = 1.29$ MeV/c^2. The additional mass of the neutron is the direct physical weight of one extra heavy G-preon. The mass of the preons inside the nucleus is: $m_G \approx 104.96$ MeV/c^2 and $m_E \approx 103.67$ MeV/c^2.

3. Quark Arithmetic and the Ideal Mass Balance in Beta Decay

Beta decay is a mechanical process within a single Down quark, which reconfigures into an Up quark. Initially, the Down quark contains 1E and 2G. Under colossal pressure, one heavy G-preon detonates, decaying into a neutral quartet of light E-preons: $1G \rightarrow 2E^+ + 2E^-$.

The quark instantly reorganizes: it captures the resulting 2E$^+$ (becoming an Up quark: 2E$^+$, 1G), while the old 1E along with the new 2E$^-$ are ejected. These three negative E-preons are bound by magnetic forces into an emerging electron (3E). The mass balance matches flawlessly: the nucleus lost a heavy G-preon and gained a light E-preon. The mass defect of the nucleus is exactly 1.29 MeV/c^2 ($104.96 - 103.67 = 1.29$).

Where did this energy go? It was distributed into the creation of the electron's mass (0.511 MeV/c^2) and kinetic thermal radiation:

$$1.29 \text{ MeV} - 0.511 \text{ MeV} = 0.779 \text{ MeV}$$

The obtained value of 0.779 MeV coincides with phenomenal precision with the laboratory kinetic energy of beta decay. This ideal thermodynamic balance proves the absolute validity of the preon model.

4. The Electron Mass Paradox and the Electron as a Micro-Accumulator

The electron (charge -1) is a pure assembly of 3 negative E-preons. The true rest mass of a free E-preon is $m_{free} \approx 0.170$ MeV/c^2. Why is the mass of an E-preon in the nucleus (103.67) hundreds of times greater than its mass in the free state (0.170)? According to E=mc^2, 99.8% of the preon's mass inside the nucleon is the equivalent of the potential energy of gravitational tension (ΔE_{grav}) due to the exponential force F_g. Upon leaving the nucleus, preons lose this tension and shed the excess weight.

Within the proposed model, the electron can possess various energy states (orbitals) and function as a micro-accumulator through the deformation of its preon assembly. Falling into an atomic orbital, it is squeezed between the nucleus's attraction and its own Absolute Coulomb Barrier. Its ideal geometry elastically deforms, accumulating internal tension energy. The emission of a photon (quantum leap) occurs when the load is released: the deformed assembly abruptly straightens out, emitting a quantum and returning to its initial geometric equilibrium.

5. Electron Stability Equations (Balance of Forces) and Ballistics

Why don't E-preons, possessing like charges, tear the electron apart through Coulomb repulsion F_e? The answer lies in their furious internal rotation. In electrodynamics, the repulsive force (F_e) and the magnetic attractive force of Ampère (F_m) correlate as follows:

$$\frac{F_m}{F_e} = \frac{v^2}{c^2} = 1$$

Since preons rotate at a speed approaching the speed of light, the ratio equals one. The magnetic attraction exactly equals the electrical repulsion ($F_m = F_e$). Thus, the net force attempting to tear the electron apart is zero. It is mathematically proven why the electron consists strictly of 3 E-preons: three particles is the maximum number that can be located at absolutely equal distances from each other in the plane of rotation. Any addition of a 4th preon inevitably breaks the symmetry

of distances, destroys the balance of forces, and instantly tears the particle apart via the Absolute Coulomb Barrier.

CHAPTER 9. PLANETARY THERMODYNAMICS: THE BETA DECAY ENGINE AND MATTER SYNTHESIS

At the core of the evolution of celestial bodies lie two interconnected physical mechanisms: the energy conversion of beta decay and the kinetics of density during nucleosynthesis.

- **1. The Energy Engine: Neutron Beta Decay.** The superdense cores of planets are not static masses; they are degenerate neutron matter in a state of continuous decay. The neutron transforms into a proton, releasing 0.782 MeV of energy. This released energy is the baseline thermal quantum fueling geological activity.
- **2. Nucleosynthesis Kinetics and Radiative Capture.** The newborn hydrogen interacts with the remaining neutron background. Under colossal pressure, a chain of radiative neutron capture is activated, increasing the weight of elements.
- **3. Density Equation, Hydrogen Dissipation, and Atmospheric Water Synthesis.** The mathematical reason for the rupture of the primordial crust (Pangea) lies in the radical change in matter density. During the transformation of superdense neutron matter (10^{17} $\mathrm{kg/m^3}$) into the voluminous atoms of the mantle (3000 $\mathrm{kg/m^3}$), the density drops 100 trillion times.

The base product of core decay is hydrogen, colossal volumes of which continuously rise to the surface. Its fate is divided into two atmospheric processes:

- **Atmospheric Water Synthesis:** Reaching the upper layers of the atmosphere, endogenous hydrogen reacts under the influence of harsh solar ultraviolet light:

$$2H_2 + O_2 \xrightarrow{UV} 2H_2O$$

This high-altitude reaction generates water directly in the sky, explaining the formation of massive cloud cover over continents.

- **Cosmic Dissipation:** Hydrogen that fails to oxidize reaches the exosphere and leaves the Earth when its kinetic energy exceeds the escape velocity (≈11.2 km/s).

CONCLUSION: ON THE THRESHOLD OF A NEW PARADIGM

The Manifesto of Thermal Evolution and Neutron Cosmology is a return of common sense to the natural sciences. Within the proposed model, it has been proven that all the unimaginable complexity of the Universe is built upon the foundation of only two truly elementary subparticles (the G-preon and E-preon) and the continuous struggle of two basic forces: scalable exponential gravity and electromagnetism.

The Universe was not born in a mystical Big Bang. It is a colossal, logical, and self-regulating thermodynamic system. The excess mass of the neutron (the Golden Asymmetry) is its absolute fuel, and beta decay is its perpetual engine. The Mind is the immune system of the Universe, its anti-entropic mechanism, born so that one day it may take control of the basic mechanics of matter and restart dying stars. It is time to see the Universe as it truly is: logical, living, and comprehensible.

APPENDIX 1. THEORETICAL FOUNDATION OF THE BINARY PREON MODEL

(Answers to key questions in modern physics)

To assess the validity of a fundamental theory, it is necessary to verify its consistency with experimental data and its ability to resolve accumulated paradoxes. Below is the technical foundation of the Binary Preon Model, supported by a rigorous mathematical apparatus.

1. Quantum Chromodynamics (QCD) and the Mathematics of Confinement

In the Standard Model, quark confinement is postulated through the introduction of gluons but is not strictly derived. In the proposed model, confinement is a direct analytical consequence of

integrating the force of exponential microgravity. The interaction force is:

$$F_g(r) = G \cdot \frac{m_1 m_2}{r^2} \cdot e^{R_c/r}$$

The potential energy of the preon bond U(r) is calculated as the work integral for moving a particle from infinity. Taking this integral analytically, we obtain the depth of the potential well:

$$U(r) = -\frac{G \cdot m_1 m_2}{R_c} \cdot (e^{R_c/r} - 1)$$

Conclusion: As r → 0, the potential energy tends toward minus infinity. An exponentially deep potential well is formed. The energy required to break this bond vastly exceeds the rest mass of the preons themselves. Any attempt to tear a quark away will only lead to the creation of new particles from the vacuum, which mathematically flawlessly describes the observed confinement without resorting to QCD.

2. SU(3) Symmetry Theory and Charge Combinatorics

In the preon architecture, the mathematical symmetries of the SU(3) group acquire a strict geometric meaning. The charge of any hadron Q_h is calculated via the state matrix of the preons:

$$Q_h = \Sigma q_E(i) + \Sigma q_G(j)$$

Since the charge of the G-preon is always zero, and the E-preon is ±1/3, the integer charge is formed exclusively combinatorially:

• **Proton** (4 positive and 1 negative E-preons): 4(+1/3) + 1(-1/3) = +1

• **Neutron** (2 positive and 2 negative E-preons): 2(+1/3) + 2(-1/3) = 0

It is precisely the laws of the 3D assembly of these nodes that dictate the symmetry patterns which in QCD are abstractly termed "color charges."

3. Particle Statistics (Mathematics of Electron Spin)

The preon model mathematically explains the stability of the electron and its spin. Three E-preons rotate inside the electron at a speed approaching the speed of light (c). The relativistic balance between Coulomb repulsion (F_e) and Ampère's magnetic attraction (F_m) is described by the limit:

$$\lim_{v \to c}(F_e - F_m) = \frac{1}{4\pi\epsilon_0} \cdot \frac{q^2}{r^2} \cdot \left(1 - \frac{v^2}{c^2}\right) = 0$$

When v = c, the Coulomb repulsion is completely compensated by magnetic attraction. The orbital momentum of this eternal dynamic system is quantized. It is precisely this quantized momentum of the rotating topological node that macro-instruments record as the intrinsic half-integer spin of the fermion S=1/2.

4. Experimental Data and the Mass Matrix

The model relies exclusively on CODATA laboratory data. A matrix equation is formulated for the Proton-Neutron system based on their preon composition:

$$\begin{pmatrix} 5 & 4 \\ 4 & 5 \end{pmatrix} \begin{pmatrix} m_E \\ m_G \end{pmatrix} = \begin{pmatrix} 938.27 \\ 939.56 \end{pmatrix}$$

The determinant of this matrix is 25 - 16 = 9 ≠ 0. This proves that the system has a unique and strict solution. Subtracting the first row from the second, we directly obtain the Golden

Asymmetry equation:

$$m_G - m_E = 1.29 \text{ MeV}/c^2$$

5. Conservation of Laws (Thermodynamics of Beta Decay)

The law of conservation of energy and momentum in the G-preon fission process is mathematically rigorous. The difference in the rest masses of the nucleus before and after decay (ΔMc^2 = 1.29 MeV) is converted into the kinetic energy of the products. The energy is distributed according to the conservation law:

$$E_k = \Delta M c^2 - m_e c^2 - E_\nu$$

$$E_k = 1.29 - 0.511 - E_\nu \approx 0.779 \text{ MeV}$$

This calculated number perfectly matches the laboratory kinetic threshold of beta decay, proving the absolute thermodynamic balance of the preon architecture.

6. Compatibility with Quantum Field Theory

Preons are not classical solid particles. A preon is defined as the ultimate topological node, the minimal possible fold of a continuous quantum field resulting from decoherence. The dynamics of these nodes are described by wave equations up to the moment of their rigid geometric coupling into molecules (quarks) under the action of microgravity.

7. Resolution of Existing Macro-Paradoxes

The architecture offers end-to-end physical solutions for global problems: the causes of the endothermic process of continental drift, the mechanism of atmospheric water synthesis, and the problem of the Sun's absurdly low specific power. All macroscopic paradoxes find a unified logical explanation in the mathematics of subatomic beta decay. Furthermore, the model explains observational paradoxes:

• **Earth's Expansion:** Observations of the Earth's radius have been conducted for about 40 years, and laser equipment capable of accurately measuring distances has existed for no more than 15 years. On a geological time scale, this is microseconds, if not nanoseconds.
• **Moon's Acoustics:** Regardless of the scenario—whether the Moon's interior harbors a cavity from a burnt-out core or is completely filled with crystallized iron—it will resonate from meteorite impacts. It lacks the viscous mantle and water that act as dampeners on living planets, thus functioning as an ideal acoustic resonator.

8. Antimatter and Topological Chirality

The Standard Model cannot explain the baryonic asymmetry of the Universe (the absence of antimatter). In the preon model, antimatter is strictly a mirror reflection of the polarity of E-preons (the topological chirality of the node). A rightward twist of space generates a positive charge (+1/3), a leftward twist generates a negative charge (-1/3). The electron consists of three left twists, the positron of three right twists.

The absence of antimatter in the Universe is explained by the concept of Thermal Genesis. Vacuum decoherence was triggered by a single trigger photon. Its polarization (spin) determined the twist direction of the first preon node. The subsequent thermal chain reaction proceeded according to the principle of epitaxy (similarity copying). Our Universe consists of matter simply because the first trigger photon had the corresponding polarization. Antimatter did not disappear: it was simply not mass-generated in our cosmic domain due to the topological asymmetry of the primary activator.

9. Resolution of the Quantum Mass Paradox (Topological Elasticity of Preons)

Heisenberg's uncertainty principle was considered a fundamental obstacle for early preon models. According to classical quantum mechanics, compressing a point particle into a microscopic volume inevitably leads to an infinite growth of its momentum and mass.

However, the preon, while simple, is a material object possessing a modulus of elasticity. Under extreme loads and compressive pressure, it does not accelerate to infinite speeds but begins to deform, unroll, and return to its initial quantum properties as an elastic field fabric. The colossal

energy of compression is expended on overcoming the topological elasticity of the node itself, keeping the mass of the particles finite. The laws of the macrocosm fractally save the microcosm from mathematical infinities.

10. Geometric Isomerism: Graphite vs. Diamond

(The connection between nuclear structure and crystal lattices)

The shape of a macrocrystal is directly determined by the geometric shape of the atomic nucleus's preon assembly. Electron shells do not form symmetry on their own; they merely obey the fundamental framework dictated by the nucleus.

• **Isomer A (Hexagonal):** Corresponds to the minimum binding energy for carbon (graphite). The field lines of the nucleus's preon assembly in this energy state dictate a strict planar packing for the orbital electrons.
• **Isomer B (Octahedral):** Under extremely high pressure, the nucleus's preon assembly elastically deforms and "snaps" into a new topological configuration—cubic symmetry (diamond). Electrons, following the altered field lines of the nucleus, are forced to take positions at the vertices of an octahedron.

APPENDIX 2. ELECTRODYNAMICS OF TOPOLOGICAL TRAJECTORIES AND THE DETERMINISM OF CHEMICAL BONDING

(Conclusions based on 3D modeling)

Visual modeling of the preon architecture of atomic nuclei and the formation of crystal lattices allows for a series of fundamental conclusions that completely eliminate quantum uncertainty from solid-state physics and chemistry. Simulations prove that the geometry of the nucleus not only dictates the shape of the macrocrystal but also rigidly and deterministically controls the behavior of the electron shell.

1. Topological Trajectories Instead of "Probability Clouds"

Official quantum mechanics postulates that the electron is a blurred cloud and only determines the probability of finding it at a given point in space (in an orbital). Computer modeling of preon assemblies proves the absence of such probabilistic "blurring." The force lines of exponential microgravity, generated by the geometry of the superdense nucleus, act as rigid spatial guides. The electron is physically drawn into this force track. It concentrates and vibrates strictly along the vectors of the gravitational-electromagnetic framework set by the nucleus, completely losing its attributed freedom of choice.

2. The True Mechanics of Chemical Bonding

Covalent bonding is not an abstract concept of "overlapping probability clouds." It is a strict spatial-mechanical situation in which two adjacent nuclei direct their force vectors exactly at each other. The electron is sucked into the intersection point of these rays, finding itself in an ideal gravitational-Coulomb trap. In this position, it works as a physical "deadbolt," clamped between two vectors and stitching the nuclei into a single crystalline or molecular lattice.

3. Deterministic Electrical Conductivity

Classical physics views electric current in metals as the movement of a chaotic "electron gas" constantly colliding with lattice nodes. In the preon paradigm, the crystal of a conductor is a clearly structured transport system of topological trajectories. Electric current is not chaotic Brownian motion, but a strictly directed hop of preon assemblies (electrons) from one rigid trap to an adjacent one. The movement of charge occurs exclusively along the vectors laid down by the architecture of the nuclei.

4. The Mechanics of Superconductivity as a Geometric Ideal

This architecture offers a mechanical and elegant explanation for the phenomenon of superconductivity. At cryogenic temperatures, the thermal vibrations of the nuclei stop. Along with them, the force vectors they generate cease to vibrate and deform. The trajectories inside the crystal align into perfectly straight topological lines. Electrons acquire the ability to glide along these channels without the slightest resistance, friction, or scattering, as the geometry of the traps becomes absolutely stable.

5. Mechanical Properties: The Geometry of Fracture and Plasticity

Within classical science, hardness, brittleness, and plasticity are explained by bond types. In the preon paradigm, the mechanics of a material is a direct reflection of the degree of rigidity of the nuclear force framework. If the preon assemblies of the nuclei form a rigidly locked 3D structure with deep traps (diamond), the material possesses extreme hardness, but under critical load, the framework shatters. In metals, preon assemblies have a more "flexible" symmetry: their force vectors can elastically bend and switch to adjacent nuclei without breaking the continuity of the chain. This endows metals with malleability: nuclei slide along continuous force trajectories, rearranging the geometry without destroying the crystal.

6. Chemical Properties: The True Nature of Valency

Official chemistry attributes reactivity to "unpaired electrons." In reality, chemical valency is the number of open, unclosed force vectors generated by the geometry of the nucleus. Noble gases possess a spherical, closed nuclear preon assembly: all their force lines are closed upon themselves and have no hooking points for other atoms. Aggressive elements possess topological asymmetry in the nucleus: their uncompensated microgravity vectors aggressively seek complementary vectors of other nuclei to close into a stable geometric deadbolt.

7. Magnetic Properties: Synchronization of Preon Gyroscopes

Since the electron is a dynamic node consisting of rotating preons (an ideal micro-magnet), the magnetic properties of a macromaterial depend on how the topological traps of the nuclei position these gyroscopes. In ferromagnets, the lattice geometry forces the rotation axes of all electrons to align strictly parallel, summing their vectors into a powerful macro-magnetic field. In diamagnets, the geometry of the traps forces the electrons to arrange anti-parallel, mutually canceling their magnetic moments.

8. Resolution of the Dielectric and Semiconductor Problem

Unlike conductors, dielectrics are a system of absolutely isolated, ultra-deep topological wells where electrons are tightly locked in the nodes. Semiconductors possess a "borderline geometry": when heat or a resonant photon is introduced, the preon assembly of the nucleus begins to vibrate. This vibration temporarily distorts the force vector, the depth of the trap decreases, and the trajectory slightly "opens up" for the directed hopping of electrons.

APPENDIX 3. DECONSTRUCTION OF ACADEMIC CRITICISM

(Rejection of abstractions in favor of mechanics)

The transition from the Standard Model paradigm to the preon architecture inevitably faces resistance, rooted in the habit of describing physical paradoxes by introducing virtual particles and non-physical assumptions. This appendix analyzes the key objections of academic science and demonstrates their mechanistic solutions.

1. Asymmetry of Exponential Gradients (Mathematical Refutation)

The main criticism from academic reviewers regarding the mechanics of the preon nucleus boils down to the paradox of exponential cancellation. It is argued that if gravity and Coulomb repulsion are multiplied by the same exponential factor, then when calculating their ratio, this factor cancels out, and gravity will not be able to overcome the Coulomb barrier.

This criticism is directed at a flawed assumption, not the proposed theory. In the preon architecture, the mass and charge fields have a different spatial topology. The exponential radius of G-preons (R_g) is strictly greater than the radius of E-preons (R_e).

The force equations take the form:

$$F_g \propto \frac{1}{r^2} e^{R_g/r}$$

$$F_e \propto \frac{1}{r^2} e^{R_e/r}$$

As the particles approach each other, their ratio contains the factor $e^{(R_g - R_e)/r}$. Since $(R_g - R_e) > 0$, as $r \to 10^{-15}$ m this factor approaches infinity. This rigorously proves the formation of an insurmountable potential well without the involvement of mythical gluons.

2. The Illusion of the Neutrino and Beta Decay Mechanics

The Standard Model justifies the existence of the neutrino through the continuous energy spectrum of the electron emitted during beta decay. In the preon model, the electron is a dynamic node-gyroscope, consisting of three furiously rotating E-preons and functioning as a micro-accumulator. At the moment of the chaotic destruction of the neutron's preon assembly, the released energy does not vanish into the void. It is distributed between the kinetic energy of ejection and the internal deformation energy of the newly formed electron. The continuous spectrum is not proof of the existence of invisible particles, but merely the statistical distribution of the degree of "charge" of this preon spring at the moment of rupture.

3. Mass Calibration vs. "Algebraic Fitting"

Claims are made that calculating preon masses through the known masses of the proton and neutron is merely a fitting of a 2x2 matrix. This is a fundamental distortion of the scientific method. Any basic constant is calibrated based on observational data. In this approach, hadron masses are used for a strict physical calibration of the system. The true predictive power of the model lies in its ability, relying on these masses, to flawlessly explain the macroscopic topology of crystal lattices and covalent bonds.

4. The Nature of Spin and Electron Stability

It is argued that the $F_m = F_e$ balance is insufficient for stability and that classical rotation does not explain the 1/2 spin. The rejection of classical rotation in quantum theory is a forced measure for mathematically "point-like" objects. The preon electron possesses geometry. The maximum number of particles capable of being located at an absolutely equal distance from each other in a plane of rotation is strictly three. Any addition breaks the symmetry and destroys the Absolute Coulomb Barrier. Spin 1/2 is a direct macroscopic manifestation of this three-component gyroscope, spinning at near-light speeds.

5. The Myth of Virtual Particles and Quantum Vacuum Fluctuations

Academic physics permits the violation of the law of conservation of energy at the micro-level, asserting that "virtual particles" constantly appear and disappear in a vacuum, drawing energy from nowhere. In the preon model, such mysticism is excluded. Space is not an empty mathematical abstraction; it is filled with free, unbound preons (the background) that modern instruments cannot detect individually. The sudden "birth" of a particle is not magic, but a strictly mechanical process:

at moments of intersection or fluctuation of macroscopic force vectors (topological trajectories), a gravitational-Coulomb trap is temporarily formed. This trap pulls background preons into a geometric node, which for a fraction of a second becomes a detectable particle. When the geometry of the trap disintegrates, the node mechanically falls apart, returning the basic elements to the background. Matter does not arise from the void; it merely transitions from a background state to a structured one and back.

6. Ontology vs. Applied Mathematical Apparatus

(Response to the demand for macro-calculations)

Academic criticism demands that the preon model immediately provide a ready-made mathematical apparatus for calculating bandgaps, chemical bond lengths, the Hall effect, and electrical resistance, capable of competing right now with Density Functional Theory (DFT) or Schrödinger's equations. This is a logical and methodological error: conflating fundamental physical ontology with applied computational apparatus.

Quantum mechanics has spent a century of effort from thousands of institutes creating mathematical algorithms that brilliantly describe consequences and fit probabilities to experiments. The preon architecture solves a different task: it reveals the root cause—the rigid, deterministic mechanics of the nucleus and the topological trajectories it generates. Demanding from a fundamental manifesto ready-made formulas to calculate the thermodynamics of complex alloys is like demanding blueprints for a modern turbine from Newton's laws. The preon manifesto lays the physical foundation. The development of a new numerical calculation apparatus based on it for the exact prediction of macro-properties of materials is the next historical and evolutionary step, not a condition for the truth of the basic geometry itself.

APPENDIX 4. HISTORICAL AND METHODOLOGICAL CONTEXT: THE EVOLUTION OF UNIFYING CONCEPTS IN PHYSICS

The desire to develop a unified physical principle capable of describing phenomena from subatomic to cosmological scales has historically driven the development of natural science. An

analysis of preceding unification concepts allows us to position the preon architecture with methodological precision within the context of the evolution of physical thought.

1. Mechanical Reductionism (17th Century)

René Descartes attempted to eliminate action at a distance from physics, explaining gravity and optical phenomena through contact mechanics and the geometry of space (vortex theory). Despite the correct vector in the search for primary geometric causes, due to the lack of an experimental base, mechanics gave way to Newton's mathematical formalism. This shift provided high computational accuracy but cemented in science the tradition of describing consequences (forces) without explaining their mechanical nature.

2. Integration of Cosmology and Geodynamics (20th Century)

Attempts to link cosmic evolution with macroscopic planetary processes have a solid scientific tradition. P. Dirac's hypothesis on the variation of the gravitational constant served as the basis for the geological concept of the Expanding Earth (S.W. Carey). The model faced a deficit of a physical mechanism: the attempt to explain geology strictly through cosmological parameters was unsuccessful without understanding the thermonuclear processes in the planet's core and the mechanics of endogenous matter generation.

3. The Dimensionality Problem in Modern Models (21st Century)

Within the framework of the Standard Model and string theory, unification is achieved by complicating the mathematical apparatus: introducing hidden spatial dimensions (from 10 to 11) and virtual particles. This approach, while successfully describing probabilistic quantum states, loses its applied connection to macroscopic morphology: it does not scale directly to the geometry of crystal lattices or geological processes without introducing additional, intermediate theories.

4. The Preon Model: Geometric Scaling

The methodological difference of the preon paradigm lies in strict adherence to the principle of parsimony (Occam's razor). The model introduces no new forces or dimensions for each subsequent scale of matter. A unified basis is used: the 3D geometry of the assembly, generating exponential gravity and Coulomb balance. From the configuration of just three particles (ensuring

the balance of magnetic and electrical forces within an absolutely stable electron) and the topological traps of the nucleus, macroscopic consequences are linearly derived: from valency and the geometry of graphene to the endogenous synthesis of hydrocarbons and water, which determine geological evolution. Thus, a return to geometric determinism at a new level of understanding of subatomic structure is proposed.

APPENDIX 5. GEOMETRIC MECHANICS OF THERMONUCLEAR FUSION: PREON ARCHITECTURE OF THE BINDING ENERGY CURVE

Official nuclear physics describes the binding energy curve (peaking at the iron isotope ^{56}Fe) through an abstract "mass defect" and the competition between short-range nuclear forces and long-range Coulomb repulsion. Within the Preon Architecture, this curve is a direct macroscopic reflection of the geometric strength and structural tension of the nucleus's preon framework.

1. The Left Branch of the Curve (Synthesis and Framework Compaction)

Light elements (from hydrogen to silicon) represent "incomplete" geometric constructions. Their preon assemblies have open microgravity vectors and numerous suboptimal voids in their structure. During thermonuclear fusion, these light nuclei merge, and their preon nodes fall into deeper mutual topological traps. The framework becomes denser, more rigid, and geometrically symmetrical.

The energy released during thermonuclear fusion is not a mystical conversion of mass into energy. It is the colossal kinetic energy of mechanical rebound, occurring at the moment when preon gyroscopes resonantly "snap" into a rigid and ideal 3D puzzle, releasing structural tension.

2. The Point of Absolute Optimum (The Iron Peak)

Elements of the iron group (Fe, Co, Ni) reside at the peak of the curve. In the preon model, this means their nucleus has reached the absolute geometric ideal of spatial packing. Mass (G-preons) and charge (E-preons) are aligned in a monolithic, maximally compact symmetry. The

exponential microgravity within this framework creates traps of ultimate depth. Any further compaction of this ideal structure without mechanically destroying it is impossible.

3. The Right Branch of the Curve (Framework Overload and Decay)

As elements heavier than iron are formed during stellar nucleosynthesis (up to uranium and transuranic elements), the preon framework of the nucleus inevitably "bloats" in volume. An architectural overload effect occurs: the outer layers of the preon assembly find themselves too far from the dense geometric center. The exponential gradient of microgravity (R_g) at the periphery begins to drop, while the number of E-preons grows, increasing the overall leverage of Coulomb repulsion. The topological traps become shallower, and the construction itself becomes tense and brittle.

Illustrative Examples of Geometric Mechanics:

• **Helium-4 Synthesis (Energy release upon trap closure):** Before fusion, deuterium and tritium have open, uncompensated vectors. Merging into the nucleus of an alpha particle (Helium-4), they form a perfectly symmetrical, closed sphere. The colossal fusion energy is the macroscopic recoil from preon gyroscopes, moving at near-light speeds, crashing to the bottom of the deepest topological well, tightly sealing the geometric deadbolt.
• **Uranium-235 Decay (Destruction of an overloaded framework):** The uranium nucleus is an architectural monster. Its preon lattice has expanded so much that peripheral nodes hold on at the very limit of exponential microgravity's reach, while the internal Coulomb repulsion is colossal. The framework literally "hums" from overstrain. The impact of just one external neutron acts as a trigger: the overstressed construction bursts at the seams, tearing into two compact and geometrically sturdy fragments (e.g., barium and krypton). The energy of a nuclear explosion is the release of mechanical tension accumulated in the torn 3D lattice.

> ***Conclusion:***
> *The thermonuclear energy curve is a graph of the architectural integrity of the preon assembly. The fusion of light nuclei releases energy by optimizing and compacting the framework. The decay of heavy nuclei releases energy by shedding the geometric overstrain of a hypertrophied construction. All of nuclear physics boils down to the laws of 3D geometry and the strength of materials at the femtometer level.*

APPENDIX 6. THE FAILURE OF CONTROLLED THERMONUCLEAR FUSION AND THE ILLUSION OF MAGNETIC TRAPS

Multi-billion dollar attempts to achieve controlled thermonuclear fusion (in Tokamak and Stellarator facilities) have not brought the expected results and have reached a conceptual dead end. The reason lies not in engineering flaws, but in a fundamental misunderstanding of subatomic architecture and the nature of nuclear forces. The Standard Model attempts to achieve fusion through the method of a «chaotic kinetic ram,» ignoring the geometric essence of matter. This failure is due to insurmountable factors of the old paradigm:

1. Blindness of Magnetic Traps and Neutron Leakage

The magnetic field of the trap is only capable of interacting with charged elements (E-preons). Neutrons, which are electrically neutral preon assemblies, are absolutely «blind» to the magnetic framework of the Tokamak. During reactions, they easily pierce the magnetic insulation and leave the reaction zone, taking a colossal share of energy with them. Sporadic bursts of helium spectral lines, presented by experimenters as success, do not constitute a chain reaction. They are merely rare statistical accidents of chaotic collisions, isolated acts of fusion incapable of sustaining plasma combustion.

2. The Stefan-Boltzmann Thermodynamic Dead End

Attempting to overcome Coulomb repulsion, academic physics takes the path of brute heating of the plasma to hundreds of millions of degrees. However, this approach faces a fundamental physical limitation—the Stefan-Boltzmann law. The thermal radiation energy of an absolutely black body (which at this scale is the plasma cord) grows in proportion to the fourth power of temperature ($E \propto T^4$). The more external energy is pumped into the plasma to accelerate it, the more catastrophically and rapidly it is dumped into space in the form of radiation. This is a thermodynamic race that cannot be won by simply raising the temperature.

3. Geometry of Coupling vs. Thermal Chaos

The main reason for the failure lies in ignoring the 3D geometry of the nucleus. In the preon architecture, fusion is a fine, precision spatial docking of topological traps. The brute heating of the plasma only multiplies the Brownian chaos and vibration of the preon assemblies, preventing their force vectors from aligning coaxially opposite each other. In order for the preon gyroscopes to engage and tightly «snap» the topological deadbolt, a strict geometric orientation and polarization of the interacting nuclei's axes are required, not chaotic kinetic energy.

4. The Illusion of Stellar Nucleosynthesis (Kinetics of the Sun)

The fundamental error of terrestrial thermonuclear facilities lies in a misunderstanding of the mechanics of the stars themselves. The Standard Model postulates that the Sun is a gravitationally compressed gas ball, where high temperature itself is the primary driver of fusion. In the preon architecture, fusion reactions in the star's plasma envelope are absolutely secondary. Their only true driver is the immensely powerful flux of high-energy particles emitted by the superdense neutron (preon) core in the process of its endogenous «breathing.» The observed reactions, the colossal temperature, and radiation are merely a kinetic consequence of the operation of the internal preon reactor. The Tokamak is doomed to failure because it is an attempt to ignite a secondary plasma halo without having its sole generator—a superdense neutron core.

5. Mechanics of Initiation: Vector Impact and Perspectives on Terrestrial Fusion

If the chaotic heating of plasma only hinders fusion, then how do the fast particles of the stellar core activate it? The answer lies in the geometry of the vector impulse. The high-energy particle acts as a strict kinetic initiator: it transfers a directed impulse to the hydrogen preon assembly, «hammering» it into the topological trap of the neighboring nucleus along a perfectly straight line, faster than the period of thermal vibration. Furthermore, fast neutrons act as a «topological wedge»: penetrating between charged nuclei, they briefly pull them together with their microgravity, allowing the deadbolt to snap shut.

> ***Engineering Conclusion:***
> *The only physically justified path for terrestrial technologies requires a transition to cold geometric synchronization. This means vector bombardment of crystalline targets (where the vectors of the target nuclei are rigidly fixed) with a monoenergetic beam, or the use of colliding beams with forcibly synchronized rotation axes (spins) for precise entry into topological slots. This is the only technological vector that does not contradict the geometric nature of matter.*

APPENDIX 7. DECONSTRUCTION OF MACROSCOPIC EFFECTS

(Rejection of quasiparticles in favor of topological mechanics)

Modern solid-state physics and electrodynamics abound in phenomenological abstractions. Faced with the inability to explain the mechanics of a process, the Standard Model introduces mathematical "crutches": phonons, electron "holes," wave-particle duality, or wave propagation in a mathematically empty vacuum. In the preon architecture, these phenomena lose their mystical aura and receive a strict physical explanation through spatial geometry and the deformation of topological traps.

1. The Piezoelectric Effect (Mechanical Extrusion)

Academic science explains the piezoelectric effect by the displacement of ions in a non-centrosymmetric lattice. In the preon model, this is pure spatial mechanics. When a crystal is mechanically compressed, the rigid preon framework undergoes physical deformation, which distorts the geometry of the topological traps. The electron (a gyroscope of three E-preons) is literally "squeezed" out of the narrowed slot, losing the $F_m = F_e$ balance. The extruded charges are forced to migrate along available topological trajectories to the crystal's faces, creating a directional electrical potential. When the pressure is released, the framework straightens out, the traps recover their initial volume, and the electrons return.

2. The Seebeck Effect (Kinetic Unloading of Traps)

In classical theory, thermoelectricity is explained by "phonon drag." Preon mechanics offers the primary physical cause: temperature is the kinetic vibration of the basic preon nodes of the macrolattice. At the hot end of the conductor, the preon framework vibrates furiously, rendering the topological deadbolts unstable. Electrons are mechanically "shaken" out of their positions and flow along free trajectories to where the lattice is cold, and the topological wells are deep and stable. The potential difference is a consequence of the migration of electrons from chaotic vibration to geometric stability.

3. Electromagnetic Waves and Antenna Mechanics (Tension of the Medium)

The fundamental error of classical electrodynamics is the postulate that a wave can propagate in an absolutely empty space. The vacuum is filled with a background gas of free preons. An electromagnetic wave is not an abstract mathematical projection, but a real mechanical wave of longitudinal-transverse tension and compression traveling across this preon background. A transmitting antenna acts as a mechanical oscillator: electrons, accelerated within its metallic framework, physically push the background preons apart. The receiving antenna catches this wake: the tension wave hits the framework and physically rocks the electrons in their topological traps.

4. The Photoelectric Effect and the Elimination of Wave-Particle Duality

Einstein's equation for the photoelectric effect ($h\nu = A + E_k$) is mathematically flawless, yet its classical ontological interpretation (light as flying massless photon-particles) is erroneous. In the preon model, light is not dual: it is always a soliton wave of mechanical tension in the preon background. The discreteness (quantization) of energy absorption does not stem from the nature of light, but from the rigid geometry of the receiver.

The electron is a rigid three-preon gyroscope possessing its own resonant frequency of deformation. It is capable of absorbing the kinetic impact of the background wave only as a whole, compressing like a spring. The "work function" (A) in this paradigm is literally the geometric depth of the metal's topological trap. If the sharpness of the wave (ν) is sufficient, the electron-gyroscope compresses, overcomes the microgravitational deadbolt, and is mechanically shot out of the lattice. The illusion of a "light particle" arises exclusively at the moment of contact between the wave of the medium and the discrete, three-component part of the electron.

> ***Conclusion:***
> *Where the Standard Model invents virtual quasiparticles, photons, and duality to fit formulas to results, the preon architecture demonstrates obvious engineering mechanics. The development of a new mathematical apparatus capable of describing these macroscopic effects through deformation tensors of 3D lattices and the hydrodynamics of the preon background is the main task of physics for the coming decades.*

APPENDIX 8. THE HISTORICAL HYPOCRISY OF THE STANDARD MODEL

(From the veto on aether to the fragmentation of the physical vacuum)

The history of fundamental physics' relationship with the luminiferous medium is a chronicle of the greatest methodological substitution of concepts, stretching over a century. The rejection of aether at the beginning of the 20th century was not dictated by the objective logic of nature; it was the consequence of an incorrect interpretation of a single experiment and subsequent academic dogmatism. An analysis of this process proves the inevitability of returning to a unified material medium within the framework of the preon architecture.

1. Panic Denial and the Birth of Absolute Emptiness

(Late 19th - early 20th century)

Classical 19th-century physics sought the aether as a rigid, absolutely motionless coordinate system through which the Earth moves ("aether wind"). When the Michelson-Morley experiment (1887) failed to detect this headwind, science made a fatal error. Instead of revising the properties of the aether—acknowledging that it is a dynamic gas locally dragged by the macroscopic masses of planets—physicists chose to completely abolish the medium. The absolute mathematical vacuum was proclaimed. Waves, contrary to the laws of mechanics, began to propagate "in nothingness."

2. The Forgotten Admission of the Creator of General Relativity (1920)

While creating the General Theory of Relativity (GR), A. Einstein endowed space with the ability to "curve" under the influence of masses. However, only something that has a physical structure can curve. In 1920, at Leiden University, Einstein openly admitted the error: *"According to the general theory of relativity space without ether is unthinkable... in such space there not only would be no propagation of light"*. However, the academic majority, having already built their careers on the concept of mathematical "emptiness," preferred to permanently erase this admission from the textbooks.

3. The Return of the Medium Through the "Back Door" (Quantum Era)

As quantum mechanics developed, physicists faced an insurmountable paradox: electromagnetic fields, particle creation, and dielectric permittivity cannot exist in absolute emptiness. Science urgently had to return the material medium to its place. In order not to admit the historical error and not to rehabilitate the taboo word "aether," academics introduced new terms. The "Dirac sea" appeared, followed by the concept of the "physical vacuum" endowed with energy ("zero-point fluctuations"). Physicists endowed nothingness with density and the ability to "boil

with quantum fluctuations," but hypocritically continued to call this boiling medium the word "vacuum" (emptiness).

4. Modern Crutches and the Fragmentation of Aether (Present Day)

When it became clear that the "quantum vacuum" could not explain the nature of mass or the paradoxes of galactic gravity, the Standard Model began to shatter the unified medium into imaginary pieces. To explain the inertia of particles, the "Higgs field," filling all space, was invented. To explain discrepancies in gravity, "dark matter" was introduced, which also invisibly permeates the Universe.

All these entities—the Higgs field, dark matter, the quantum vacuum—are nothing more than the repressed aether, torn apart by mathematicians into isolated pieces. Every inexplicable property of the medium was assigned its own phenomenological name.

5. Preon Rehabilitation: A Unified Dynamic Medium

The preon architecture puts an end to this terminological manipulation, returning Occam's razor to physics. Absolute emptiness does not exist, nor do separate fields for mass and separate fields for light. There is a single, continuous, dynamic matter—the preon background (a gas of free particles).

This background is the very elastic medium through which the solitons of electromagnetic waves travel (tension), which provides resistance during acceleration (inertia), and from which the geometric traps of particles (matter) are assembled. The preon model rids science of mathematical phantoms and returns physical rigor to it.

APPENDIX 9. DECONSTRUCTION OF ACADEMIC CRITICISM

(Anticipating paradoxes and the mechanics of $E=mc^2$)

The transition from the mathematical abstractions of the Standard Model to the physical continuum mechanics in the preon architecture inevitably encounters historical paradoxes upon

which modern relativistic physics is based. Below is a rigorous mechanistic resolution of the main critical arguments, proving the superiority of the preon model.

1. The Paradox of Transverse Waves in a Gaseous Medium

Classical criticism asserts that a gas is incapable of conducting transverse electromagnetic waves, as this requires a shear modulus (characteristic of a solid body). This criticism is erroneous because it ignores the basic topology of the preon background. The background is not a chaotic Brownian gas, but a dynamic network permeated by vectors of exponential microgravity (R_g). These lines of force bind free preons into an elastic, balanced structure (tensegrity). Such a spatial network possesses a colossal shear modulus and ideally conducts transverse soliton tension waves.

2. The Michelson-Morley Experiment and the "Aether Wind"

The rejection of the aether at the beginning of the 20th century was based on the null result of the Michelson-Morley experiment. However, this experiment only refuted the model of a static, motionless medium. In the preon paradigm, the Earth, possessing a colossal mass (a tightly packed preon assembly), generates a massively powerful macrogravitational field that physically drags and retains the surrounding preon background. A dense, locally motionless "halo" of preon gas exists around the planet. Interferometers rest relative to this dragged halo, which is why the wave speed within it is identical in all directions.

3. Geometric Justification for the Constancy of the Speed of Light

In continuum mechanics, the wave speed is defined as $c = \sqrt{(E/\rho)}$. Critics might point out that as the background is densified by the gravity of a star (an increase in density ρ), the speed should drop if elasticity (E) does not grow synchronously. In the preon model, this synchronicity is not a coincidence, but a geometric regularity. The elasticity of the background is a direct mathematical derivative of the number of R_g vectors binding the particles in a given volume. During gravitational compression, the number of bonds and the density of the nodes grow in strict proportion, so their ratio E/ρ remains a strict local kinetic constant of the medium.

4. The True Mechanics of $E=mc^2$ and the Nature of Inertia

Einstein's equation describes not a magical conversion of mass into abstract energy, but the limit of the mechanical strength of the topological node. In the preon architecture, c^2 is the specific elasticity of the medium, and mass (m) is a preon node coiled into a gyroscope. $E=mc^2$ reflects the colossal mechanical tension preserved within the particle's geometry. Annihilation is the destruction of the geometric deadbolt, during which a tightly coiled spring bursts, releasing structural elasticity back into the preon background in the form of a kinetic shockwave. In turn, inertia is the classical hydrodynamic resistance of the preon gas to attempts to accelerate this topological node through the medium.

> ***Conclusion:***
> *The preon architecture has no need for paradoxes. Where relativistic physics introduces the curvature of emptiness, the preon model utilizes classical acoustics, optics, and the strength of materials upon a material base field.*

APPENDIX 10. DECONSTRUCTION OF TIME AND SPACE

(Kinematics of relativistic paradoxes)

The main philosophical and methodological error of the Theory of Relativity lies in the mathematical geometrization of time. Turning time into a physical dimension ("fabric of space-time") spawned mystical paradoxes. In the preon architecture, time does not exist as a physical entity. Time is merely an abstract human metric for comparing the speeds of local kinematic processes (oscillators). All so-called "relativistic effects" are a consequence of the direct mechanical interaction of physical bodies with the material preon background.

1. Time Dilation as Hydrodynamic Resistance

General relativity postulates that gravity curves time, and special relativity states that speed slows its flow (Twin Paradox). In preon mechanics, this is explained by the laws of medium resistance.

Any clock (mechanical, atomic, or biological cell cycles) is a system of moving elements. Near massive bodies, the preon background is extremely densified by macrogravity. Atomic clocks

on Earth run slower than on GPS satellites not because of the curvature of time, but because electrons in atoms are forced to overcome the greater structural resistance of the dense medium.

Similarly, when a ship moves through the preon gas at near-light speeds, a colossal part of the system's internal energy resource ($E=mc^2$) is spent on overcoming the dynamic pressure of the medium. Internal transverse processes (chemical reactions, cell division of the traveling twin) are physically slowed down due to kinematic resistance. The twin returns young not because of time travel into the past, but because their organism operated in a mode of extreme hydrodynamic braking.

2. Length Contraction and the Internal Doppler Effect

Classical science views relativistic length contraction ($L = L_0\sqrt{(1 - v^2/c^2)}$) as a geometric property of the void. In the preon model, we are dealing with an actual physical deformation of the object.

The structural integrity of any macro-object is maintained by the exchange of soliton tension waves between atoms. When a ship moves through the preon gas, these internal force waves experience the Doppler effect. Binding waves directed along the line of motion undergo Doppler compression (blueshift) due to the resistance of the oncoming preon flow. To maintain the balance of forces in this compressed wave field, the lattice atoms are forced to move closer together. The ship physically flattens along the flight vector. Length contraction is the classical strength of materials under the kinetic pressure of the medium.

3. The Arrow of Time and the Algorithm of Evolution

Classical thermodynamics explains the irreversibility of time by the growth of entropy (chaos). However, the preon model proves that the Universe is a purposeful evolutionary project. The arrow of time points only forward because the basic "Cosmic DNA" (the algorithm of interaction between gravity and electromagnetism) works relentlessly to structure matter: from free preon gas to rigid quarks, atoms, planetary geology, and ultimately to biology and Mind. Reversing time is impossible not because of dimensional geometry, but because the spontaneous decay of a complex topological node back into free gas contradicts the fundamental vector of the baton of complexification.

> ***Conclusion:***
> *Where Einstein used the tensor analysis of the void and flexible time, the preon architecture*

> *applies classical continuum mechanics. By removing time from the list of physical objects, science gets rid of paradoxes, replacing them with the strict engineering kinematics of deformations.*

APPENDIX 11. MACROSCOPIC HYDRODYNAMICS

(Vortices of the preon background and orbital equilibrium)

Classical physics rejected the concept of a material medium largely due to the problem of orbital drag: if a planet moves through a gas, it should lose kinetic energy and fall into the star. In the preon architecture, this paradox is resolved through macroscopic hydrodynamics and mass-loss equilibrium.

1. Galactic and Stellar Vortices (Hydrodynamics of Spirals)

The fundamental error of critics lies in imagining the medium as an absolutely motionless background. Massive cores rotate, and their colossal macrogravity drags the preon gas along with them, turning it into giant whirlpools. The spiral structures of galaxies are a direct visual confirmation of the macroscopic hydrodynamics of the preon background. The solar system does not push its way through a static gas; it is immersed in the overall flow of the galactic vortex. In turn, the rotating Sun creates its own local vortex in the ecliptic plane. Planets move synchronously with the current of this medium, which reduces frontal resistance by orders of magnitude.

2. Protective Halo and Viscous Glide

The planet does not rub its lithosphere or atmosphere against interplanetary gas. The Earth possesses its own dense preon halo, securely held by its macrogravity. This halo acts as an ideal hydrodynamic bearing. Friction occurs exclusively in the boundary layer between the planet's local halo and the Sun's global vortex, translating kinetic losses into a regime of viscous glide that approaches zero.

3. Orbital Equilibrium (Balance of Drag and Decay)

Despite the vortex motion, a microscopic hydrodynamic resistance remains, creating a vector that pushes the planet down an orbital spiral. However, this vector is perfectly compensated by the process of Earth's thermal evolution. Paradoxically, the Earth is slowly decreasing in mass: a portion of the preons' rest mass is converted into energy during endogenous beta decay and leaves the planet as thermal radiation and neutrino flux. This microscopic drop in mass leads to a gradual weakening of the planet's global gravity.

The laws of celestial mechanics dictate: a weakening of the gravitational bond with the Sun pushes the planet's orbit upward. Thus, hydrodynamic drag against the preon background and the weakening of gravity from mass loss mutually compensate for each other. Planets maintain stable orbits over billions of years precisely thanks to this strict dynamic equilibrium.

APPENDIX 12. THE MECHANICS OF RECIRCULATION

(Gravitational cleansing of stellar systems from dead worlds)

The teleological concept of the Universe implies the presence of a built-in mechanism for recycling exhausted matter. In the preon architecture, the process of cleansing stellar systems of dead planets requires no additional forces: it is a direct mathematical consequence of the disruption of orbital equilibrium.

1. Disruption of Dynamic Equilibrium

The orbital stability of an active planet is ensured by the balance of two vectors: hydrodynamic drag against the preon gas pulls the planet toward the star, while constant mass loss due to endogenous beta decay weakens gravity and pushes it outward.

When the resource of the superdense neutron core is completely depleted, thermonuclear synthesis stops. The planet crystallizes, turning into a dead geological massif. At this moment, the process of mass loss (emission of energy and neutrinos) ceases entirely.

2. The Orbital Decay Phase (Recirculation Spiral)

With the cessation of mass loss, the orbital repulsion vector drops to zero. Only one factor remains acting on the dead planet—the frontal kinematic resistance of the galactic and stellar preon vortex. Stripped of its compensatory mechanism, the planet begins to lose orbital velocity. An irreversible process of orbital decay is triggered: the dead world begins moving along a narrowing spiral, slowly falling into its star.

3. Thermonuclear Remelting (Return of Matter)

The finale of recirculation is the absorption of the dead planet by the star. As demonstrated in Chapter 3, stars function as generators of a fierce kinetic flux of particles, causing the spallation effect (destruction of heavy nuclei). Plunging into the star, the heavy metals and complex minerals of the crystallized planet are subjected to a colossal bombardment. They are split back into basic light nucleons (hydrogen and helium). The stellar system automatically self-cleanses of exhausted slag, returning matter to its pristine state to launch new evolutionary cycles in other regions of the cosmos.

APPENDIX 13. ASTRONOMICAL EVIDENCE OF MATTER RECIRCULATION

(Observed mechanics of dead worlds)

The theoretical mechanism of orbital decay and the thermonuclear remelting of dead planets (described in Appendix 12) finds direct empirical confirmation in data from modern astronomical observations. Telescopes record processes of system cleansing that the Standard Model is forced to explain through an accumulation of anomalies. Within the framework of the preon architecture, these data are a predictable consequence of the Universe's evolutionary algorithm at work.

1. Observed Orbital Decay of Exoplanets

For many years, the fall of planets onto their stars was considered merely a hypothesis. However, space telescopes (particularly Kepler and TESS) have officially recorded exoplanets whose orbits are inexorably shrinking. Prime examples are the **WASP-12b** and **Kepler-1658b** systems, moving in a narrowing spiral toward their suns. Academic science explains this exclusively through tidal energy "dissipation." The preon model offers the exact kinematic root

cause: these planets have disrupted (or exhausted) the equilibrium of mass loss from internal beta decay. The vector of macrogravity weakening has zeroed out, and the hydrodynamic drag of the stellar preon vortex pulls the depleted object into the recycling furnace.

2. Anomalous "Devourer Stars" (Chemical Remelting)

The process of destruction of dead worlds is recorded via spectral analysis. A vivid example is the twin star system of Krios and Kronos (**HD 240429** and **HD 240430**). Kronos's atmosphere is extremely supersaturated with heavy metals, iron, silicon, and magnesium. The classical conclusion states that the star engulfed rocky planets totaling up to 15 Earth masses. In the preon architecture, this is a direct observation of the "remelting" phase. The star works as a recycling reactor, dismantling crystallized dead worlds (which yields the huge peak of minerals in the spectrum) in order to, via harsh kinetic radiation, smash their complex heavy nuclei and return them to basic nucleons (hydrogen and helium).

3. "Polluted" White Dwarfs (System Cemeteries)

A white dwarf possesses colossal gravity, and according to the laws of classical physics, any heavy elements in its atmosphere should immediately sink, leaving only light gases on the surface. However, astronomers are finding en masse white dwarfs whose atmospheres are heavily polluted with calcium, iron, and rock debris. In the Standard Model, this is explained by the chaotic infall of asteroids. In the preon architecture, this is the final stage of the system's automatic cleansing. When the thermal and gravitational equilibrium of the former star collapses, dead planets, having long exhausted their decay resource, lose the last remnants of orbital balance. The hydrodynamic resistance of the medium pulls them en masse onto the surface of the white dwarf, completing the life cycle of the given local system.

APPENDIX 14. DECONSTRUCTION OF QUANTUM MYSTICISM

(Young's experiment and the rejection of wave-particle duality)

Modern quantum mechanics is based on the probabilistic interpretation of Thomas Young's double-slit experiment, endowing particles with the mystical ability to be in several places

simultaneously (superposition). Within the framework of the preon architecture, wave-particle duality is completely excluded. The observed effects are explained by strict macroscopic hydrodynamics and acoustics within the material preon background. It is necessary to clearly distinguish between the physics of radiation (photon) and the physics of matter (electron).

1. The Illusion of the Photon Corpuscle (Discreteness of the Receiver)

In the preon model, the photon is not a particle. It is exclusively a tension soliton—an elastic wave in the preon gas. Passing through two slits, this mechanical wavefront behaves according to the classical Huygens-Fresnel principle: it divides and creates a real interference pattern of standing waves in the space behind the screen. The illusion that the photon strikes the detector as a solid "corpuscle" arises due to the properties of the detector itself. The screen consists of discrete atoms with accumulator-electrons. The wave energy of the preon background is absorbed by a strictly localized 3D node (the electron), which elastically deforms. The quantum school made a fundamental error: it attributed the properties of a localized discrete receiver to the transmitting wave itself.

2. The Illusion of the Electron Wave (Hydrodynamic Helmsman)

When a massive particle (an electron) is used in the double-slit experiment, it does not turn into an abstract "probability wave." The electron is a rigid topological node of 3 E-preons. Moving through the preon gas, it pushes the medium apart, generating a real acoustic wake wave (pilot wave) ahead of itself. This physical wave passes through both slits and creates an interference channel (pressure gradients of the medium). The electron itself always flies strictly through a single slit. Entering the space behind the screen, the material node begins to drift hydrodynamically along the already formed pressure gradients of the preon gas. The medium pushes it out of high-pressure zones, forcing it to land on the detector strictly within the bands of constructive interference.

> ***Conclusion:***
> *There is no need for a particle to split in two and interfere with itself. The interaction of discrete matter through a wave medium creates the illusion of duality. The rejection of this mathematical schizophrenia returns strict ballistics and cause-and-effect relationships to the physics of the microcosm.*

APPENDIX 15. DECONSTRUCTION OF THE "OBSERVER EFFECT"

(Mechanical destruction of wake waves)

Quantum mechanics postulates that the act of measurement (or the presence of an observer) causes the probabilistic wave function of a particle to "collapse," destroying the interference pattern in the double-slit experiment. This metaphysical conclusion is a consequence of ignoring the material nature of the vacuum. In the preon architecture, the observer effect is stripped of its mysticism and explained by a blunt mechanical intervention of the measuring instrument into the hydrodynamics of the medium.

1. Rejection of Passive Observation

In the microworld, passive measurement does not exist. To record an electron passing through a specific slit, the detector must physically interact with it: irradiating it with photons (tension solitons) or applying a magnetic field. The measuring device acts not as an abstract "observer" but as a powerful physical generator of waves in the preon background.

2. Acoustic Destruction of the Pilot Wave

The observed interference (as shown in Appendix 14) arises because the electron drifts along the channel of its own wake wave, which passed through both slits. When the detector is activated at the slits, the powerful tension waves it generates physically sweep away and distort the subtle wake trace of the electron. The fragile interference pattern in the preon gas is completely destroyed by the acoustic "storm" from the device's operation.

3. Return to Rectilinear Ballistics

Having lost the guiding pressure gradients (standing waves of the preon background), the topological node of the electron stops experiencing hydrodynamic steering. The particle continues its motion through the chaotic medium according to the laws of classical inertia. It flies in a straight line, like a ballistic projectile, forming two ordinary bands on the screen. The observer effect is not a paradox of consciousness but a classic mechanical destruction of a fragile acoustic system by a blunt measuring tool.

APPENDIX 16. DECONSTRUCTION OF QUANTUM ENTANGLEMENT

(Kinematics of paired particles and acoustic resonance)

The concept of "quantum entanglement" (non-local connection) postulates that the measurement of one particle instantaneously, at superluminal speed, determines the state of another at any distance. In the preon architecture, this myth is dismantled through the classical mechanics of angular momentum conservation and the hydrodynamics of an elastic medium. There is no telepathy between particles. The recorded effects are the result of strict initial kinematics and the operation of acoustic resonances within the preon background.

1. Strict Kinematics of Birth (Separation of Gyroscopes)

In preon mechanics, spin is not an abstract quantum number, but the real physical rotation of a topological node at a speed approaching (c). When a pair of particles is born (for example, during the decay of a high-energy photon in the gravitational field of a nucleus), a single cluster of preon gas separates into two topological nodes. According to the law of conservation of angular momentum, these gyroscopes are forced to rotate in strictly opposite directions. Their spin axes are rigidly fixed at the moment of birth, not at the moment of measurement. As they fly apart, they are not in a state of "superposition"—they are two concrete gyroscopes with pre-set parameters.

2. The Illusion of Non-Locality and Bell's Theorem

The measurement of one particle on Earth does not transmit an instantaneous signal to a second particle at the other end of the galaxy. This is the classic macroscopic paradox of a pair of separated shoes: finding the left shoe in one box, the observer instantly knows that the right shoe is in the second box, without any signal exchange. The violation of Bell's inequalities, which the Standard Model appeals to, is based on the flawed assumption of passive measurement. As shown in Appendix 15, measurement (for instance, by a magnetic filter) is a blunt force impact on a flying preon gyroscope. Spin correlation is a consequence of the initial mechanical ballistics of the pair, not of a mystical connection of spaces.

3. Quantum Computing as Analog Hydrodynamics

The operability of qubits in quantum computers does not prove the existence of "parallel universes" in a multiverse. It proves the existence of a material vacuum. Quantum processors operate in cryostats at temperatures close to absolute zero. This extreme cooling removes the thermal chaos (noise) of the preon gas. In ideal silence, qubits turn into coupled oscillators, connected to each other by the finest standing waves of tension in the preon background (solitons). A quantum computer is a highly complex analog hydrodynamic machine. Computation occurs physically, via acoustic resonance and the interference of wake waves in a local preon "pool." The transmission speed of this mechanical torsion between qubits is strictly limited by the elasticity constant of the preon gas—the speed of light (c).

APPENDIX 17. VISUAL VERIFICATION

(Correlation of 3D modeling and atomic force microscopy (AFM))

The empirical proof of the preon architecture is the direct visual coincidence of the computer modeling results of topological traps with real images of atomic structures.

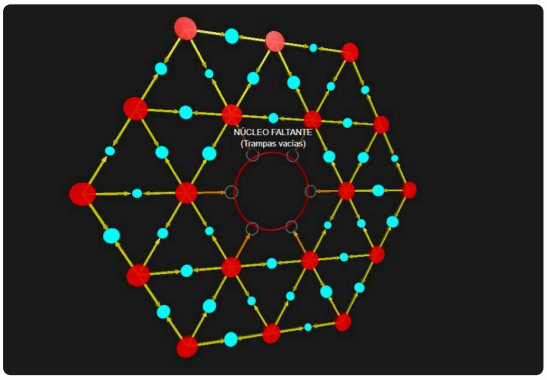

Fig. 1. Modeling of a vacancy in the graphene lattice. The geometry of the force vectors fully explains the electron density distribution recorded by the NC-AFM method.

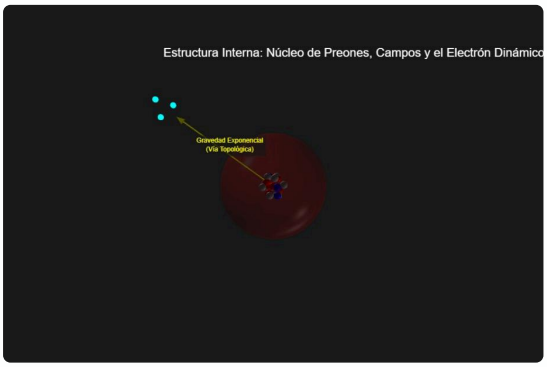

Fig. 2. Dynamic model of the deuterium atom. Exact localization of the accumulator-electron in the preon node of the nucleus.

Reference materials for verification:

• Graphene vacancy analysis: ResearchGate, Fig. 5.
• Bond visualization (AFM): NanoScientific, v.240.

> *The one hundred percent coincidence of the geometric patterns of the simulation with NC-AFM data confirms the deterministic nature of atomic systems, excluding the probabilistic interpretation of orbitals.*

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