

Andrew's Ground

A Mechanical Unification of the Cosmos

**The Fundamental Interactions, Dark Matter, and Time as Hydrostatic Phenomena of a 4D
Quark-Gluon Plasma Sea**

Author: Andrew Robus

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Abstract: The Mechanical Unification of the Cosmos

This paper presents an alternative cosmological model that traces the fundamental interactions of physics back to a purely mechanical basis. Instead of an abstract spacetime, this model postulates the universe as a three-dimensional boundary layer (3D bubble) existing within a large (possibly infinite), high-energy four-dimensional medium of quark-gluon plasma (Andrew's Ground).

By introducing this 4D medium, central enigmas of modern physics are resolved:

- **Gravity** is explained as a mechanical pull of matter toward the 4D core.
- **Dark Matter** is identified as an energetic scaling of quark tension – an effect in which galactic radiation increases the internal binding energy of matter, thereby massively amplifying its spatial curvature.
- **Dark Energy (Expansion)** results from the thermal energy absorption of the 3D space from the 4D medium.
- **Time** is defined as a variable state value directly dependent on the immersion depth (density resistance) within Andrew's Ground.

The Andrew's Ground model provides a non-contradictory framework that unites quantum mechanics (entanglement as a 4D pressure column) with macrophysics (galaxy formation and expansion), while maintaining the principles of causality and mechanical tangibility.

This model is based on a phenomenological analysis of known physical paradoxes and utilizes established observational data from modern astronomy and quantum mechanics as its logical foundation. It is intended as an independent theoretical explanatory approach without direct reference to specific prior works by third parties.

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The Model of Universal Expansion within Andrew's Ground

1. Andrew's Ground (The 4D Foundation)

Definition: A four-dimensional medium consisting of high-energy and high-density Quark-Gluon Plasma (QGP). Andrew's Ground forms the fundamental substance of existence. Matter originates through the cooling process of Quark-Gluon Plasma. While the external structure solidifies into stable particles, the energetic interior of each particle remains directly and inseparably connected to the global QGP sea. Due to its four-dimensionality, this medium is simultaneously adjacent to every point in our universe.

2. The Bubble (Our 3D Reality)

Definition: A three-dimensional entity created from rotating and subsequently cooling Quark-Gluon Plasma. The formation process was initiated by a high-energy pulse (jet or gamma-ray burst)—or other processes explained in later chapters—that set the local plasma into rotation. Centrifugal forces isolated this volume from the surrounding plasma, enabling the cooling process.

Structure and Expansion: The matter we know is cooled Quark-Gluon Plasma that has formed into complex structures, such as stars and galaxies, within the bubble. Vacuum is the space between these structures. Since thermal energy (waste heat) from Andrew's Ground continuously radiates into the bubble, this empty space expands steadily—the universe expands.

3. Black Holes (Windows to the Ground)

Definition: Physical perforations (breaches) within the three-dimensional structure of our space.

Mechanics of Spatial Stretching: Mass possesses the property of stretching 3D space toward the 4D interior of Andrew's Ground. A Black Hole represents the most extreme form of this stretching. The closer one approaches the center, the deeper space is pulled into the denser 4D medium.

The Event Horizon: At the Schwarzschild radius, the stretching of space is so intense that the connection to the 4D ground becomes direct. Beyond this boundary, the 3D structure ruptures (perforation). Here, the uninhibited pull of the QGP sea takes effect.

Significance: The observed extreme gravity and the emitted jets are the direct physical consequences of this massive energetic interaction. In the vicinity of a Black Hole, we are physically deeper within the "inner" medium, which—due to the higher density of the QGP sea at that depth—leads to an extreme slowing of time.

Mechanical Definition of the Alpha Particle Pairs

Since the diversity of elementary particles is highly complex for non-specialists, this model focuses on the decisive key pairs that form the fundamental building blocks of the cosmos. I hypothesize quarks and electrons to be the fundamental representatives of mass and energy. Whether a specific particle or the entire group (e.g., all leptons) represents the absolute primordial building block remains a detail for technical physics; decisive for Andrew's Ground is solely their specific mechanical function.

This paper describes the fundamental actors within the 3D boundary layer (our universe), based on the Andrew's Ground model. We distinguish between Alpha Mass and Alpha Energy.

1. The Alpha Mass Pair: Quarks and Gluons

This pair forms the mechanical foundation of matter. It arises from the extreme physical contrast between the cooled exterior in our 3D boundary layer and the energetic 4D interior, which transitions directly into the surrounding QGP sea.

The Quark (The Particle)

- **Mechanical Nature:** The quark is a physical matter particle within our universe. While its surface is cooled and stable in the 3D boundary layer, its interior (facing the 4th dimension) remains uncooled and is a direct part of the global QGP sea. Since no cooling is possible inside the high-energy sea, a permanent physical gradient is created.
- **Function:** The quark acts as the primary building block of mass. Because the hot plasma inside the quark strives to flow back into the center of the 4D medium, while the cooled 3D shell is rigidly bound to our dimensions and cannot yield, a massive mechanical pull value (tension) is generated.

The Gluon (The Effect / The Tension)

- **Mechanical Nature:** The gluon is not an independent particle but rather the internal mechanical tension resulting directly from the quark.
- **Function:** This tension is created by the mechanical tug-of-war between the inward-pressing QGP and the particle structure fixed in 3D space. This force acts like an extremely strong, unyielding "elastic band." When several quarks are in close proximity, these tension fields couple. Thus, the "gluon" describes the colossal resistance (the "glue") that holds matter together and puts the space immediately surrounding the particle under tension.

2. The Alpha Energy Pair: Electrons and Photons

The Alpha Energy Pair is responsible for dynamic processes and energetic communication within the 3D boundary layer. It represents the level of interaction and chemical structuring.

The Electron (The Particle)

- **Mechanical Nature:** The electron is a small, highly mobile particle-point composed of cooled QGP substance on the surface of the 3D bubble. Like the quark, its interior is directly connected to the 4D QGP sea, making it a physical part of this energetic medium.
- **Function:** It represents localized energy within our universe. As a carrier of charge, it forms the mechanical basis for all chemical bonds and the structure of atomic shells.

The Photon (The Effect)

- **Mechanical Nature:** The photon is not an independent matter particle but the kinetic energy release of an electron to its environment.
- **Function:** Any abrupt change in the state or position of an electron generates a mechanical impulse. This impulse propagates as a wave across the 3D boundary layer. The photon thus acts as a tool through which electrons interact over distances. Since the electron is permanently connected to the high-energy QGP sea via its 4D interior, it loses no substantial energy or mass through the emission of photons; it is, in a sense, connected to an "infinite battery." The photon itself possesses no rest mass, as it merely represents the transported impulse (the motion) on the 3D surface.

3. Interaction and Decay (The Neutrino)

- **Mechanical Impact:** If a massive quark strikes an electron, the electron is mechanically transformed.
- **The Neutrino:** The neutrino is the result of this process—a "stripped" particle relic. It loses its capacity for photon interaction (charge) and retains only a minimal rest mass. It is the smallest stable particle fragment remaining after a high-energy collision of the Alpha pairs.

The Scaling of Gravity – From Quark Resistance to the Galactic Halo

In this model, gravity is not a static property of mass, but the measurable consequence of a dynamic state of tension. As defined in the chapter on the Alpha Mass Pair, the gluon represents the mechanical resistance against the pull of the 4D medium. This tension scales depending on the energetic environment of the matter.

1. The Micro-Level: Mass as Fundamental Tension

At the smallest level, a quark is never at absolute rest. The strong nuclear force (gluons) acting within keeps the particle in a permanent state of high-tension binding.

- **Mechanical Origin:** Since the quark acts as an interface to the 4D medium, the blocked inward "pull" generates a colossal internal tension.
- **The Analogy:** Each quark acts like an extremely tight, vibrating spring.
- **Definition of Mass:** What we measure as "mass" is the mechanical load that this tiny, local spatial curvature exerts on the fabric of spacetime. This fundamental tension is the foundation that stabilizes matter and guarantees its cohesion.

2. The Macro-Level: Summation Gravity (Planets & Stars)

In objects like planets or stars, trillions of these "quark springs" are concentrated in a confined space. Their individual tension fields add up linearly.

- **The Funnel Effect:** Due to the high density, the micro-indentations of the individual quarks overlap to form a massive, funnel-shaped spatial curvature.
- **Classical Physics:** This corresponds to gravity according to Newton and Einstein. The effect here is purely additive: more quarks result in a higher total sum of fundamental tension and thus a deeper "dent." This is the force that keeps planets in their orbits and us on Earth.

3. The System-Level: Energetic Charging and the Halo Effect

In the magnitude of galaxies, external energetic saturation (the "photon hammer") emerges as a decisive factor.

- **The Charging (The "X"):** Quarks within a galaxy are permanently bombarded by the massive radiation flux of billions of stars. This external energy is absorbed and increases the internal binding energy (confinement tension) of the quarks. The "spring" is additionally tensioned from the outside.
- **Collective Geometry:** The galactic halo arises primarily from the arrangement of the stars: the multitude of their matter funnels geometrically creates a large-scale, common gravitational valley—comparable to many fingers pressing simultaneously into an elastic cloth.

- **Scaling:** Due to the energetic charging (X), however, each of these "fingers" presses significantly deeper than the sheer number of quarks would suggest. Furthermore, charged quarks are emitted by the stars and flood the entire system as an "energetic veil." This presses the collective valley additionally and evenly into space.
- **Rotational Dynamics:** This massively deepened valley forms an energetic barrier. Stars rotate within this homogeneous valley at nearly identical speeds (flat rotation curve), as they would have to run against the steep "outer wall" of the valley to leave the system.

4. Conclusion of Scaling

So-called "Dark Matter" is not an exotic form of particle, but the result of a scalable quark tension.

1. **Standard Gravity** is the effect of the natural fundamental tension of resting matter.
2. **Amplified Gravity (Dark Matter)** is the mechanical reaction of matter to a high-energy galactic environment.

The matter is not "insufficient"—within galactic structures, it is simply energetically charged and thus curves space more efficiently.

The Mechanical Origin of the Four Fundamental Interactions

1. Gravity: The Static Pull

Every quark is directly connected to the four-dimensional Quark-Gluon Plasma sea. This connection possesses an intrinsic flow property toward the high-energy center of Andrew's Ground.

- **Mechanics:** The 4D substance inside the particle permanently strives to flow "inward." However, since the solidified 3D matter shell has lost its fluidity and is stuck on the surface of the universe, a permanent mechanical pull is exerted on the spatial fabric.
- **Effect:** We perceive the resistance of the solidified shell against this pull as mass. The aspiration of the internal substance to flow back into the 4D medium manifests as the gravitational force.

2. Strong Nuclear Force: The Mechanical Compound

When particles are so close to each other that their 4D connections to the sea overlap or influence one another, the strongest bond in the cosmos is formed.

- **Mechanics:** Since all quarks within a proton pull toward the same energetic center "inward," a common suction channel is created. Attempting to detach a quark from this compound requires working not only against the inertia of the quark but also against the bundled pull of the 4D sea, which holds these particles together like an elastic band.
- **Effect:** We refer to this force as the Strong Nuclear Force. The "gluons" are merely the measurement values for the extreme mechanical resistance that occurs when attempting to sever this 4D connection.

3. Electromagnetism: The Mechanics of Alpha Energy

While gravity results from the massive vertical pull of the quarks, electromagnetism describes the mechanical interactions taking place horizontally along the three-dimensional boundary layer.

- **Mechanics (The Electron):** The electron is a mobile point composed of cooled QGP substance. Like the quark, its interior is directly connected to the 4D sea. Since the QGP substance inside strives to flow back into the high-energy center of the 4D medium, a permanent mechanical pull value is generated. Compared to the quark, however, this pull in the electron is optimized for energetic interaction.
- **The Effect (The Photon):** Every abrupt movement or state change of an electron generates a mechanical impulse. Since the 3D skin of our universe is under extreme mechanical tension due to the permanent pull of the Alpha pairs (particularly the strong resistance of the quarks/gluons), this tension acts as a medium. The photon is the impulse propagating as a wave across this "tightened drum" of spacetime.
- **Charge and Binding:** Electromagnetism regulates the structure of atomic shells. Electrons interact via these impulses (photons) across distances. Because the electron is directly

connected via its 4D back to the QGP sea—the "infinite battery"—it loses no substance of its own when emitting photons; it merely forwards the energy of the medium as a mechanical impulse.

4. Weak Nuclear Force: The Point of Mechanical Instability and Particle Decay

The weak nuclear force describes the moment when the mechanical structure of an Alpha pair becomes unstable. This leads to an identity change in which energy and matter are redistributed between the Alpha Mass (quark) and the Alpha Energy (electron).

- **Mechanics (The Structural Tilt):** When the local equilibrium between the particle's massive 4D pull and the stabilizing 3D boundary layer fluctuates, the system seeks a lower-energy, more stable state. The particle "tilts" into a new configuration, radiating excess energy in the form of secondary particles.
- **The Neutrino (The Stripped Relic):** The neutrino is the result of this mechanical process—a "particle fragment" created during high-energy collisions or decays. Mechanically, it is an impulse relic that has largely lost its firm connection (charge/photon interaction) to the 3D skin. It slides through the boundary layer almost without resistance, as it no longer possesses a full-fledged "anchor".
- **Reversibility (Neutrino Interaction):** If such a neutrino relic encounters a massive anchor (e.g., a neutron) again under extreme conditions, the mechanical impulse may be sufficient to "re-hook" the 3D skin. The energy of the neutrino is used to reconstruct the structure of a full-fledged electron at the interface (Inverse Beta Decay).
- **Cosmological Evolution:** In the hot early universe, high energy densities held even unstable heavy structures (such as free neutrons) together. As the 3D bubble cooled, lighter structures (protons) became mechanically favored. The weak force is the mechanism that enabled this adaptation by splitting off Alpha Energy units (electrons and neutrinos).

Cosmic Hydrostatics: Time as a Depth Gauge in Andrew's Ground

1. The Principle of Immersion Depth

In this model, time is not an independent dimension but a variable state value that depends on the position of our 3D bubble within the 4D Quark-Gluon Plasma (Andrew's Ground).

- **The QGP Sea:** The 4D medium possesses an enormous density and a depth gradient (pressure increase toward the interior).
- **Buoyancy and Sinking:** The ratio of matter (mass) to empty space (volume) determines how deep the universe sinks into the QGP sea.
- **Time Gauge:** The deeper a system lies within the QGP sea, the higher the ambient pressure of the medium, and the slower time passes.

2. The Chronology of Expansion (The Ascent)

This principle explains the acceleration of time throughout cosmic history:

- **Early Phase:** The young universe was small and possessed an extremely high matter density. The entire 3D bubble was submerged deep within the interior of Andrew's Ground. Time passed much slower due to the maximum resistance of the medium.
- **Expansion:** By absorbing thermal energy from the 4D space, the empty space grows (positive vacuum), while the amount of matter remains constant. The universe gains "buoyancy" and rises into shallower, less dense layers of the QGP sea.
- **Present Day:** Since we are now located further "outward," the resistance of the medium is lower—time passes significantly faster than in the early era.

3. Solving the Age Paradox (Methuselah Stars)

The discrepancy between the calculated age of the universe (13.8 billion years) and the complexity of early galaxies is resolved by variable time density:

- **Relativity of Aeons:** Since time passed much slower in the first billions of years due to the depth within the QGP sea, a "second" back then corresponds to a far longer period in today's time scale.
- **Effective Time:** A process that would take 100 billion years by today's measurements could be completed in the early phase in a much smaller number of years because the "proper time" on-site was massively dilated. Today, we look back with a "fast clock" at a system that was created in slow motion (but with enormous energetic efficiency).

4. Black Holes as Breaches

Black holes are not objects, but part of the Quark-Gluon Plasma sea, which becomes visible in our universe through a breach toward the "interior." Because a 3D hole appears like a sphere, this part of Andrew's Ground appears to us as a spherical object.

- **Spatial Stretching:** While normal mass only moderately stretches space inward, a black hole—with its extreme mass—stretches space massively deeper into the QGP sea than any other object.
- **Time Dilation:** Extreme time dilation is the direct result of space being stretched so strongly at this point that one is located in a region of extremely high ambient pressure. The closer one gets to the breach, the deeper one sinks into the medium.
- **Looking into the Sea:** Whoever looks into a black hole looks directly into the "depths" of the sea, where time comes nearly to a standstill due to the maximum resistance of the medium.

5. Entropy and the Final Ascent

Entropy is defined here as the progressive loss of density resistance. As matter continues to disperse and empty space grows, the universe gains buoyancy.

6. Conclusion

Time is the gauge of how deep we are submerged within the interior of Andrew's Ground. The 13.8 billion years of our chronology are merely a projection of our current, fast time-pulse onto a past that, in truth, offered much more "real event-time" than our models have been able to grasp until now.

Fundamentals of Geometry Part 1: The Field

Model of the 4th Dimension

1. The Problem of Conventional Representation

In classical mathematics, the fourth spatial dimension is usually represented as an additional axis (w or t) running orthogonal to x, y, and z. This abstraction complicates mechanical understanding, as it treats the 4th dimension as "something extra" existing alongside space.

2. The Redefinition: Dimension as a Foundation

This model postulates that the fourth dimension is not an axis in the classical sense, but the fundamental field (the canvas) upon which the 3D axes are stretched in the first place. It is the "inside" of everything.

- **Andrew's Ground (The Sea):** Consists of high-energy, 4-dimensional Quark-Gluon Plasma (QGP). It is not an empty void, but a high-density, frictionless medium.
- **The 3D Axes (x, y, z):** These are substructures or "drawings" on this foundation. They define the freedom of movement within our 3D bubble.
- **The 4th Direction (Inward/Outward):** Since Andrew's Ground is simultaneously adjacent to every point in 3D space (with zero distance), the fourth direction is the vector into the depth of the sea (Inward) or away from it (Outward).

3. Mechanical Properties

- **Static Base:** While matter moves within the 3D axes, Andrew's Ground remains the unmoved, static base.
- **90-Degree Invariance:** The QGP sea is simultaneously adjacent to all three 3D axes at every point.
- **Energy-Density Coupling:** The position on the 4th axis (immersion depth) corresponds to the degree of energetic influence from Andrew's Ground on matter. The deeper a point lies within the sea, the higher the energy density.

4. Visualization: The Topography Principle (Terrain Map)

To correctly represent a 4D system, we utilize the method of a terrain map:

In a 2D map (x, y), depth (the additional dimension inward) is represented by brightness and saturation (color).

Analogously, in this model, the 4th dimension is represented as a brightness gradient of the background field.

Dark areas represent a deeper embedding in the field (high pressure/density/inward pull), while bright areas represent lesser embedding. A coordinate system without this field information is physically blind.

5. QGP as the Carrier Medium

Quark-Gluon Plasma is the only observable substance that acts "truly" 4-dimensionally. Its perfect lack of friction (viscosity near zero) is the mechanical proof that it can dissipate pressure directly into the fourth dimension (inward into the sea) instead of merely distributing it within the 3D plane.

6. Conclusion

A true 4D coordinate system must not merely draw lines in a vacuum. We do not move alongside the fourth dimension; we move upon it. Every movement in 3D space is simultaneously an interaction with the depth of Andrew's Ground.

Andrew's Ground: Multiverse Dynamics and the Cycle of Bubble Ascension

1. Alternative Formation Scenarios (Multiverse Dynamics)

Although the initial impulse from a high-energy jet (gamma-ray burst) is a primary trigger, the model provides mechanisms through which 3D bubbles can form within Andrew's Ground without external jets:

- **Energetic Induction:** Massive structures within our bubble (such as supermassive black holes) interact energetically with the boundary layer to Andrew's Ground. Since the QGP is frictionless, local energy impulses do not lead to heat through friction but to the formation of stable vortices.
- **Phase Transition via Centrifugal Force:** As soon as such a vortex in the plasma reaches a critical rotational speed, the centrifugal effect leads to a local pressure drop at the center of the whirl. This promotes cooling and physical isolation from the infinite sea—a new 3D sphere is born.

2. The Cycle of Bubble Ascension (Thermal Dynamics of the 4D Plasma)

Within Andrew's Ground, an immanent flow dynamic prevails, based on density gradients along the 4th dimension:

- **Natural Jets:** At extreme "depths," the immense pressure and kinetic energy of the Quark-Gluon Plasma lead to the spontaneous formation of natural jets. These high-energy streams act as the midwives of new universes.
- **The Sinking Phase (Immersion):** A newly created universe possesses an extremely high density due to its compact form. Regardless of the "level" in which it is born, it initially sinks deep into Andrew's Ground because of this density. At this depth, the system experiences maximum ambient pressure, causing its proper time to be massively dilated (see Chapter 4). This grants the universe the necessary "time" for cooling and complex galaxy formation.
- **The Buoyancy Phase (Expansion):** Once the bubble gains volume through internal processes (vacuum formation), its relative density decreases. It begins to rise within the 4D medium.
- **Acceleration during Ascent:** During the ascent into thinner layers of the 4D plasma, the external resistance against expansion decreases. This explains the observed increase in the expansion rate from approximately 68 km/s/Mpc to the current 73 km/s/Mpc.

3. Significance for Cosmogony and Circulation

This model describes a dynamic multiverse. Universes are born through energetic impulses, sink into the depths of Andrew's Ground due to their initial density (the time-dilation phase for matter formation), and finally strive back toward shallower layers as expanding structures.

This process explains the origin of universes as a natural cycle within the infinite medium. A mature universe can induce new vortices in the plasma through high-energy events at its boundary layer, which act as sinking "seeds" for daughter universes. Thus, an eternal cycle of creation within Andrew's Ground is completed.

"Spooky Action at a Distance" Explained: Mechanical Coupling in Andrew's Ground

1. Definition of Entanglement in the 4D Medium

- In standard quantum mechanics, entanglement is described as a purely mathematical correlation without a physical substrate. In the Andrew's Ground model, however, it is defined as a direct, mechanical connection through the four-dimensional Quark-Gluon Plasma (QGP). Entangled particles are not isolated objects within our 3D bubble; instead, they function as joint contact points (valves) to the high-energy 4D background.

2. The Mechanics: Rigid Coupling

- The decisive explanatory approach for instantaneous information transfer lies in the material properties of Andrew's Ground:
- **Incompressibility:** In the depths of Andrew's Ground, the QGP behaves like an absolutely incompressible, "perfect" fluid.
- **The Rigid Pressure Column:** Entangled particles lie on a shared, four-dimensional pressure column within the 4D medium. Between particle A and particle B, there is no empty space, but a continuous, unyielding substrate.
- **Instantaneous Transfer:** Since the medium is incompressible, an impulse does not first have to overcome a distance as a wave. Any change in the state of particle A acts like a direct mechanical impact on the 4D pressure column. Due to the rigidity of the medium, particle B reacts immediately—without time delay—because no elastic deformation can occur within the 4D core.

3. Resolving the Paradox of Action at a Distance

- The "spooky action at a distance" only appears paradoxical because observation is limited to the three-dimensional bubble (our universe).
- **3D Perspective:** Particles A and B appear to be kilometers apart and exist without any physical connection.
- **4D Reality:** The information does not travel through 3D space (where it would be limited by the speed of light c); instead, it utilizes the 4D substrate as a mechanical "shortcut."

Since the speed of light c is a property of the 3D boundary layer (the surface tension of our bubble), it has no limiting significance for mechanical pressure impulses within the rigid, incompressible 4D plasma.

4. Decoherence (Severing the Connection)

- Decoherence occurs when external 3D influences (thermal radiation, collisions, measurements) act upon the contact points. These interactions disturb the exclusive mechanical coupling within the 4D medium. The specific "pressure channel" is neutralized

by the energetic background noise of Andrew's Ground, causing the particles to lose their shared mechanical basis.