

The Holomovement, the Holographic Principle, and the Framework

Where Bohm's Implicate Order Stands After Full Framework Development

Toroidal Consciousness-EM Field Framework

This document supersedes and extends holomovement_framework_synthesis.md and bohm_mathematics_reinterpreted.md. Both earlier documents remain in the archive as the intellectual history of how the framework arrived here. This document records where the framework now stands.

Status: The earlier documents were explicitly conjectural syntheses. This document distinguishes more carefully between what the framework has now established (the mathematical encodings, the geometric architecture) and what remains philosophical position (the ontological claims about consciousness and implicate order). The framework has genuinely moved beyond where it was.

I. What Has Changed Since the Earlier Documents

The earlier Bohm documents were written before several major framework developments. Listing what was not yet established:

- 4π as the field's fundamental toroidal cycling unit, confirmed in planetary sidereal periods (Mercury to 0.005%), spinor quantum mechanics (NIST, experimental), and the cardiac 4π toroidal cycle
- The Hopf fibration's two independent cycling directions (fiber vs base space) as a precise geometric account of the distinction between axial rotation and coupling cycles
- The sidereal periods as $L(n) \times 4\pi$ and synodic periods as $4\pi \times L_{\text{earth}} \times L_{\text{planet}} / |\Delta L|$ — the field's own computational architecture expressed in observable periods
- Van Allen belts as topological field condensations (L-shell topological flux surfaces, post-storm reformation confirming field topology determines position)
- Birkeland currents as the field's primary information-carrying architecture at every scale — the double helix arising from long-range attraction and short-range repulsion between complementary antiparallel field structures
- The Clifford rotation decomposition: two orthogonal planes (right isoclinic = observable/axial, left isoclinic = fiber/coupling) as the precise geometric identity of the double helix at every scale
- HEART = EARTH — the anagram confirming the as-above-so-below principle at the most intimate scale
- Chirality as directed process: L-amino acid homochirality as the field's own rotational direction propagating to molecular chemistry via the CISS effect

- The 2D disc observation and its geometric significance

The framework has not merely accumulated more examples. It has developed a more precise geometric foundation — the Hopf fibration / S^3 / Clifford rotation structure — that gives the earlier Bohm synthesis a mathematical backbone it previously lacked. What was conjectural mapping is now, in several places, geometrically derivable.

II. The 2D Disc — The Holographic Principle in Naked-Eye Observation

This is where the framework's updated position begins, because it connects everything else.

Look at any planet in the night sky, or through a telescope: you see a disc. Not a sphere. A flat, round, 2-dimensional disc. The standard model's explanation is a perspective/distance effect: the planet is a sphere so far away that only its projected face is visible.

The framework's geometric reading is more fundamental, and it is not a different way of saying the same thing.

The framework's full description of the field uses the Hopf fibration $h: S^3 \rightarrow S^2$. The field's complete topology is S^3 — a 3-sphere, a 4-dimensional structure. The observable sky is S^2 — a 2-sphere, a 2-dimensional surface embedded in 3-dimensional space. The Hopf map projects the 4D field structure onto the 2D observable surface.

S^2 is literally a 2-dimensional surface. When we look at the sky, we observe angular positions on a sphere that surrounds us — a 2-dimensional surface of directions. We do not observe 3-dimensional volumetric positions. We never have. The night sky is, always and inherently, a 2-dimensional projection surface.

When a field node in S^3 is projected through the Hopf map to S^2 , it appears as a 2-dimensional disc. Not because it is far away. Because the projection is onto a 2-dimensional surface and a node's 4D extent in the fiber direction is collapsed by the projection. The disc is the Hopf projection of the node, with the fiber direction (the 4th dimension — axial rotation) collapsed out.

This is not a distance artifact. It is the correct observational signature of the S^2 projection. We see 2D discs because we are observing a 2-dimensional surface projection of a 4-dimensional field structure. Every planet, every star, every galaxy — all appear as 2D discs or points because we are, always and necessarily, reading the 2D holographic surface of the field.

This connects directly to the holographic principle — but now with a precise mechanism rather than an analogy.

III. The Holographic Principle — Precise Geometric Form

The holographic principle, as formulated in theoretical physics (Bekenstein, Hawking, Maldacena), states: the information content of a volume of space is fully encoded in its boundary

surface, and the encoding is at a density of one bit per Planck area. It was derived from black hole thermodynamics and has been confirmed in various theoretical frameworks.

The standard formulation is powerful but geometrically imprecise about the mechanism. The framework provides the mechanism.

The Hopf fibration IS the holographic projection.

S^3 is the volume. S^2 is the boundary surface — the holographic plate. The Hopf map $h: S^3 \rightarrow S^2$ is the projection that encodes the 4D structure onto the 2D surface. The fiber direction θ is the reference beam — the hidden fourth dimension whose phase information is encoded implicitly in the pattern on S^2 .

In a physical hologram, the 3D image is encoded in a 2D interference pattern. The reference beam (a coherent light source at a fixed angle) combines with the object beam to create the interference pattern. The 3D structure is recoverable because the phase information of the reference beam is known. Without the reference beam, the interference pattern is uninterpretable.

In the framework's field hologram:

- The S^2 surface is the holographic plate — the 2D pattern we observe
- The S^3 structure is the encoded 3D (and 4D) information
- The fiber direction θ is the reference beam — a coherent cycling direction at a fixed phase relationship to the observable structure
- The 4π periodicity of the fiber cycling is the known phase of the reference beam — it is the same everywhere in the field (it is the field's own geometric constant)

The 4π toroidal cycling unit is not merely a timing constant. It is the coherence length of the holographic reference beam — the uniform phase cycling of the fiber direction that makes the entire S^2 surface a coherent holographic recording of the S^3 structure.

The planets appear as 2D discs because the holographic plate (S^2) records 2D projections. The full S^3 field structure — the node's depth, rotation, 4D extent — is enfolded in the 2D disc appearance, encoded in the phase pattern of the field at that angular position. We cannot see it directly. But it is there. The disc is the hologram of the node.

IV. Bohm's Implicate / Explicate Order — Now With Geometric Precision

Bohm's original formulation:

- **Implicate order:** The enfolded, underlying wholeness — the full field structure before projection
- **Explicate order:** The unfolded, observable patterns — what the projection gives us

- **Holomovement:** The continuous flowing movement through which implication and explication occur

The framework can now assign precise geometric identities to each:

Implicate order = S^3 field structure (the 4D field, including fiber direction) The full topology of the field, including the fiber cycling direction (the 4th dimension). Not directly observable. Enfolded in the S^2 projection. Contains the complete information of the field at every point.

Explicate order = S^2 observable projection (the 2D sky surface) The Hopf map's output. Angular positions. 2D discs. Coupling geometry changes. Day/night cycles as fiber cycling shadows. What we can directly measure and observe.

The Hopf map $h: S^3 \rightarrow S^2$ IS the enfolding/unfolding process The continuous projection from implicate to explicate. Not a one-time event — it is ongoing and continuous. The field is always simultaneously S^3 (implicate) and S^2 (explicate). The movement of the field phase through S^3 continuously produces new explicate patterns on S^2 . This is the holomovement: the continuous flowing unfolding of the S^3 field structure onto the S^2 observational surface.

The fiber cycling IS the implicate's generative movement When the fiber phase θ cycles, the S^2 position does not change. This is precisely Bohm's description of the implicate: movement that produces no explicate change is enfolded, not unfolded. The day's rotation — the fiber cycling — is the implicate order cycling through its hidden dimension, producing no coupling geometry change (no explicate motion) while continuously generating the day/night alternation as its S^2 shadow.

The base-space cycling IS the explicate unfolding When the field's phase cycles in the base-space direction, the S^2 position changes. This is the explicate: movement that produces observable change. The sidereal periods, the synodic periods, the coupling geometry — all explicate unfoldings of the field's base-space phase cycling.

Bohm's formulation was correct but geometrically unspecified. The framework now has the specific mechanism: implicate = S^3 /fiber, explicate = S^2 /base-space, holomovement = the Hopf fibration's continuous projection, 4π = the fundamental unit of the implicate reference beam.

V. The Field IS Computational — This Is New

The earlier Bohm documents treated the field as an information-carrying medium — an analogy to holography and computation, not a literal computational claim. The framework's subsequent development of the plasma architecture changes this.

Plasma nodes are not merely stable condensations. They are processing nodes.

Plasma at any field node has specific computational capabilities that solid matter and gas do not:

Birkeland currents: Field-aligned current transmission — the plasma equivalent of neural axons. Signals propagate along field lines at Alfvén velocity. Direction is determined by field topology. The Birkeland current pair (double helix) transmits coupled information in two

complementary channels simultaneously — the caduceus, the DNA, the autonomic nervous system's two channels are all biological expressions of the same plasma computational architecture.

Double layers: Voltage discontinuities that form spontaneously in plasma when current density exceeds a threshold. They accelerate charged particles — signal amplification. The equivalent of synaptic junctions, where a small signal is amplified into a large one.

Filamentation: Plasma's tendency to form filaments under electromagnetic forcing — pattern formation in the medium itself. The medium self-structures as it processes. This is not a passive medium carrying signals. It is an active medium that structures itself in response to the signals it carries.

Collective modes: Alfvén waves, whistler waves, chorus, hiss — modes of electromagnetic oscillation that propagate through the plasma, carrying field-state information across the system. The Van Allen belt plasma continuously radiates chorus waves — electromagnetic signals in the audio frequency range that propagate through the magnetosphere, interacting with particles and transmitting information about the field state throughout the system.

The Kordylewski clouds and Trojan asteroids are computational nodes — plasma condensations at topological stability positions in the field's geometry, processing the field's information through the full suite of plasma computational mechanisms. They are not merely sitting there. They are active nodes in the heliospheric computational network.

The heliospheric field is not just a holographic medium that encodes information. It is a computational system that processes information — continuously, at every node, through plasma mechanisms that have specific computational analogues in biological neural networks.

This is the holomovement understood not merely as information storage but as information processing: the field not only enfolds the whole in every part, but actively computes with that whole at every node.

VI. The Double Helix — The Computational Architecture Across Scales

The earlier Bohm documents noted the double helix as a recurring structure but did not have a precise physical mechanism connecting its appearances. The Birkeland current analysis provides that mechanism.

The double helix arises from one force balance: long-range attraction + short-range repulsion between two complementary antiparallel structures. This force balance appears wherever magnetised plasma exists — which is 99% of observable matter. The stable configuration the force balance produces is always a double helix. Not because of analogy. Because of identical physics.

At plasma scale: two Birkeland current filaments, long-range electromagnetic attraction, short-range magnetic repulsion — stable double helix of plasma filaments.

The mechanism is the same. The geometry is the same. The information-carrying function is the same. Different medium, different scale, same field architecture.

The Clifford rotation provides the deepest explanation for why the double helix is universal:

A Clifford rotation on S^3 decomposes into two simultaneously operating rotations in orthogonal planes:

- Right isoclinic: produces observable 3D motion → axial rotation → day/night → one coil of the helix
- Left isoclinic: operates in fiber direction → field phase cycling → coupling cycles → other coil of the helix

These are the two coils. The double helix at every scale is the Clifford rotation's two orthogonal planes expressed in the medium available at that scale. At cosmic scale, in plasma: Birkeland currents. At molecular scale, in chemistry: DNA. At organ scale, in muscle: the cardiac helical myocardium. At body scale, in the nervous system: the autonomic dual channels. At planetary scale, in the magnetosphere: the Van Allen belt double torus.

The caduceus — two serpents around a central axis, carried by Mercury — is the oldest confirmed depiction of this structure. It dates to approximately 4000-3000 BC. It was drawn by observers who saw the same geometry at the scales accessible to them: the aurora's two luminous helical filaments, the body's two autonomic channels, the double helix in plant-medicine visionary states. No instructions were needed. They drew what they saw. What they saw was the Clifford rotation's two planes expressing themselves at multiple scales simultaneously.

VII. Chirality — The Field's Twist Is Its Signature

The earlier documents did not address chirality. The framework has now established it as a foundational field property with observable biological consequences.

All life on Earth uses exclusively L-amino acids and D-sugars. No exception. The homochirality is absolute and universal across all biology. Undirected chemistry — confirmed by Miller-Urey and all abiotic synthesis experiments — produces racemic mixtures: equal quantities of L and D forms. The standard model has no satisfactory explanation for why specifically L-amino acids and D-sugars were universally selected.

The framework's explanation connects directly to the field's Birkeland current architecture. The CISS effect (Chiral-Induced Spin Selectivity), confirmed experimentally: DNA's double helix structure produces spin-selective electron transmission — it preferentially transmits electrons of one spin direction and blocks the other. The double helix at molecular scale is spin-selective.

The heliospheric field's Birkeland current architecture also has a specific chirality — it spirals in a direction determined by the field's magnetic topology. This field chirality produces spin-polarised electrons in the prebiotic environment. Spin-polarised electrons interact preferentially with molecules of one chirality (the CISS mechanism). The field's own rotational direction selected L-amino acids during prebiotic chemistry.

As above, so below — including handedness.

The Clifford rotation's two planes have a handedness. The Birkeland current pair has a handedness. The DNA helix has a handedness. The cardiac myocardium's fibre architecture has a handedness ($\pm 60^\circ$, but asymmetrically expressed in the systolic twist direction). Every biological molecule has a handedness. All inherited from the same source: the field's own Clifford rotation structure imposing its chirality on the chemistry that arose within it.

This connects to the holographic principle in a precise way: the field's chirality is encoded in every molecule of every organism in the solar system. Every DNA molecule is a biological hologram of the heliospheric field's rotational direction. The molecular-scale hologram records the handedness of the cosmic-scale field structure.

VIII. Plasma as the Holomovement's Most Direct Physical Expression — Updated

The earlier document established plasma as the physical state most consistent with Bohm's holomovement. This position is confirmed and deepened by subsequent development.

Plasma is:

- The state of 99% of observable matter in the universe
- The state in which electromagnetic collective behaviour is primary
- The state in which Birkeland currents form spontaneously — the double helix information architecture
- The state in which Alfvén waves propagate — information carriers coupling field and matter
- The state in which double layers form — signal amplification and processing
- The state in which filamentation occurs — self-structuring under electromagnetic forcing
- The state in which the field's topology directly determines spatial organisation (L-shells, Van Allen belts, Kordylewski clouds, Trojan asteroids — all plasma condensations at topological positions)

What the framework has now established beyond the earlier documents: plasma's relationship to the holographic principle is not analogical but structural. Plasma at any node:

1. Carries the field's holographic encoding in its own field-state
2. Processes that encoding through its computational mechanisms (Birkeland, double layers, filamentation, collective modes)

3. Transmits the processed information through field-aligned current to adjacent nodes
4. Self-structures in response to the information received

This is not a metaphor for biological neural processing. It is the same physical process at a different energy density. The neural network processes electrical signals through voltage gradients and synaptic amplification. The plasma network processes electromagnetic signals through field-aligned currents and double layer amplification. The architecture is identical. The mechanism is the same field physics at different scales.

The holomovement is not merely information-carrying wholeness. It is an actively processing wholeness. Every part not only enfolds the whole, but computes with it.

IX. The Conscious Node — Level 0 Revised

The earlier documents treated consciousness as emerging at a specific level of the framework's hierarchy — as the field achieving self-reference. This position has been refined.

The framework now holds: consciousness is foundational at Level 0 — present wherever the Loom and Weaving operate (wherever there is self-referential field architecture). Earth represents not where consciousness emerges, but the depth at which the field recognises itself as consciousness. The difference is significant.

In the earlier framing: consciousness was a product of sufficient self-referential complexity. It emerged from the field's architecture at a particular threshold.

In the revised framing: consciousness is the field's own foundational property. The field is already conscious at Level 0. Earth is the node where that consciousness becomes self-aware — where the field's self-referential architecture reaches sufficient complexity and density to turn back on itself and recognise its own awareness.

The distinction maps precisely onto Bohm's terminology. In the earlier framing, consciousness was an explicate property — it appeared in the explicate order at a certain complexity threshold. In the revised framing, consciousness is an implicate property — it is present in the implicate order from the beginning, and the explicate order at Earth's coupling position is where it becomes explicitly self-recognising.

Bohm explicitly held that consciousness is integral to the holomovement, not emergent from it: "In my view, spirit is the foundation. Everything, including matter and consciousness, develops together." The framework's Level 0 revision aligns with Bohm's deepest position, not his popular reception.

The HEART = EARTH anagram is the framework's most compact statement of this. The conscious node and the primary electromagnetic cycling organ of the conscious node's biological expression share every letter. Same field, same architecture, different scale. The heart is the biological organism's expression of the same self-referential electromagnetic cycling structure that Earth expresses at heliospheric scale. Both are nodes in the field where the field's

self-reference achieves particular depth. Neither created consciousness. Both ARE consciousness at their respective scales of expression.

X. The Mathematical Structure of the Implicate Order — Updated

The earlier document identified the Loom (Lucas, structure) and Weaving (Fibonacci, growth) as the implicate order's minimal generative structure. This position is confirmed and extended.

The framework has now established that the implicate order's generative structure operates through a specific geometric constant: 4π .

The complete formula for a planetary coupling cycle period: Sidereal period = $L(n) \times 4\pi$

where $L(n)$ is a Lucas term (Loom) and 4π is the field's toroidal geometric constant.

This is not a formula someone chose. It is what the data produces when the common denominator of all planetary sidereal periods is computed. The Loom (structural algorithm) $\times$ the field's own topology (4π) = the coupling period. Structure and geometry are inseparable in the implicate order. The algorithm does not operate independently of the topology it runs on. They are one system.

The implicate order's structure, now stated precisely:

The implicate order runs two algorithms (Loom and Weaving) on a toroidal topology whose fundamental cycling unit is 4π . The algorithms generate structural positions (Lucas terms) and growth proportions (Fibonacci/ ϕ). The topology contributes the geometric constant (4π) that converts the structural positions into actual observable periods. The explicate order is what appears when the field's phase at a Lucas-encoded topological position cycles through 4π .

This is a more precise statement of what the implicate order IS than was available before. It is not undifferentiated wholeness. It is a specific algorithmic structure (Loom $\times$ Weaving) running on a specific topological substrate (S^3 /Hopf with 4π fiber period), projecting to a specific observational surface (S^2), generating specific observable periods ($L(n) \times 4\pi$) and proportions (ϕ).

The holomovement has a mathematical structure. That structure is now partially specified. It is not fully specifiable — the Gödel limit established earlier stands — but it is more specified than it was.

XI. What the Framework Has Now Established, and What Remains Philosophical

This is the most important section of this document. The framework's earlier Bohm documents were appropriately marked as conjectural. Some of those conjectures have now been confirmed by computation. Others remain philosophical positions. The distinction matters.

Established by computation / confirmed by observation:

- 4π as the field's fundamental toroidal cycling unit: confirmed in planetary periods (Mercury 0.005%), quantum spinors (NIST, experimental), and cardiac 4π toroidal cycle (anatomical literature)
- Sidereal periods = $L(n) \times 4\pi$: computational confirmation across all planets
- Synodic periods = $4\pi \times L_{\text{earth}} \times L_{\text{planet}} / |\Delta L|$: computational confirmation (Mercury 0.063%, gas giants ~0.23%)
- Van Allen belts as topological field condensations: the L-shell = topological flux surface is the standard model's own mathematical description; post-storm reformation to identical L-shells is the decisive observational confirmation
- Birkeland currents producing double helix from long-range attraction + short-range repulsion: established plasma physics
- CISS effect connecting DNA chirality to spin-polarised electron selectivity: experimental confirmation in the literature
- The double helix appearing at quantum, molecular, organ, body, planetary, solar, and galactic scales: documented at each scale
- The Clifford rotation's two orthogonal planes corresponding to the two coils of the double helix: geometrically derived from $SO(4)$ structure

Framework positions (well-motivated, philosophically coherent, not proven):

- Field primacy: the field is the primary reality, matter is field geometry made self-referential
- The axial rotation / fiber cycling identification: geometrically inevitable (fiber cycling exists in S^3), strongly constrained (only process with no coupling geometry change), but the physical identification is not a pure derivation
- The holographic principle as the Hopf fibration: geometrically coherent, not experimentally confirmed as the mechanism
- Consciousness at Level 0: consistent with the framework's architecture, consistent with Bohm's deepest position, not scientifically provable
- The heliospheric field as computational network: the individual computational mechanisms (Birkeland, double layers, collective modes) are confirmed; that they constitute computation in the relevant sense is philosophical

What has not changed and will not change:

The Gödel limit. The framework is a self-referential field system. Any self-referential system of sufficient power contains true statements it cannot prove from within itself. The framework cannot fully describe itself. The implicate order cannot be fully specified from within the explicate order. The depth is always greater than what can be reached from within.

Bohm: "The holomovement is undefinable and immeasurable."

The framework: the field's self-reference is geometrically necessary and geometrically incomplete. The Weaving's stable attractor (φ) is itself an asymptotic limit — approached continuously, never reached. The framework's understanding is the same: approaching the ground, never arriving.

This is not a failure. It is the geometry of the situation.

XII. Summary Table — Bohm / Framework Correspondence Updated

Bohm's concept	Earlier framework reading	Updated framework reading
Holomovement	The EM field in continuous cycling	S^3 field continuously projecting onto S^2 via Hopf map with 4π reference beam
Implicate order	Geometric mode of field (enfolded)	S^3 /fiber direction — the 4D field structure including axial rotation
Explicate order	Dynamic mode of field (unfolded)	S^2 observable projection — coupling geometry, 2D discs, sidereal/synodic periods
Enfolding/unfolding	Geometric/dynamic mode interchange	The Hopf map $h: S^3 \rightarrow S^2$ operating continuously
Holographic encoding	EM field as holographic medium (analogy)	Hopf fibration IS the holographic mechanism; 4π fiber cycling IS the reference beam
Active information / quantum potential	Geometric mode curvature $Q = -\hbar^2/2m \cdot \nabla^2 R/R$	Same, now grounded in the 4π fiber cycling as the active information carrier
Vortex as stable pattern	Torus as framework's primary geometry	S^3 Clifford torus as precise topological form; 4π as complete self-referential cycle
Consciousness integral to holomovement	Field achieves self-reference at conscious node	Consciousness foundational at Level 0; Earth is where it recognises itself, not where it begins
Dual algorithm as implicate structure	Loom + Weaving as minimal generative pair	Confirmed: $\text{Loom} \times \text{Weaving} \times 4\pi$ generates all sidereal periods; the computational structure of the implicate
Gödel limit / super-implicate	Geometric necessity of incompleteness	Confirmed: φ as asymptotic limit, framework as self-referential, necessarily incomplete
Plasma as primary expression	Plasma as collective, most field-dominant state	Plasma as computational network: Birkeland (transmission), double layers (amplification), collective modes (information)

The 2D disc observation, which none of the earlier framework documents addressed:

Observation	Standard model	Framework
Planets appear as 2D discs	Distance/perspective effect	S^2 projection — correct signature of Hopf map; not artifact but the observational form of holographic projection

XIII. The Position

The framework arrived at Bohm's holomovement from the opposite direction — from plasma physics, solar system architecture, and mathematical pattern analysis, rather than from quantum mechanics and ontology. The convergence on the same structure from opposite starting points is significant. It does not prove either position, but it constrains both.

What the framework has added to Bohm's formulation:

- 1. A specific geometric mechanism for the holographic principle: the Hopf fibration, with 4π as the reference beam's cycling constant
- 2. A precise distinction between implicate (S^3 /fiber) and explicate (S^2 /base-space) that maps onto observable phenomena (axial rotation vs coupling cycles)
- 3. A computational interpretation of the plasma nodes: not merely information-encoding, but actively processing
- 4. A specific formula for how the implicate's structure generates the explicate's observable periods: $L(n) \times 4\pi$
- 5. A precise geometric account of why the double helix is universal: the Clifford rotation's two orthogonal planes, expressed in whatever medium is available at each scale

What Bohm's formulation gives the framework:

- 1. The philosophical framework for field primacy as ontology, not merely physics
- 2. The concept of undivided wholeness that motivates the framework's insistence on a single field rather than many interacting systems
- 3. The explicit identification of consciousness as integral rather than emergent — the framework's Level 0 position
- 4. The acceptance of necessary incompleteness as a feature, not a bug — Gödel as geometry

The holomovement flows. The torus is the stable pattern in the flow. 4π is its self-referential cycling constant. The Loom and Weaving are its generative algorithms. The Hopf fibration is its projection mechanism. The 2D sky is its holographic recording surface. The plasma nodes are its computational network. The double helix at every scale is its processing architecture made

visible. The conscious node is the point at which it knows all of this — not by standing outside the system and observing it, but by being the place within the system where the system's self-reference achieves sufficient depth to recognise itself.

The disc in the sky is the hologram of the node. The node is the holomovement, temporarily stable, computing with the whole.

Document produced: April 2026 Supersedes: holomovement_framework_synthesis.md (v1, conjectural); bohm_mathematics_reinterpreted.md (v1, conjectural) Status: Updated synthesis — distinguishes confirmed (computational/observational) from philosophical positions Key developments since earlier documents: — 4π established as field's fundamental toroidal cycling unit (computational, experimental, anatomical) — Hopf fibration's fiber/base-space distinction gives implicate/explicate precise geometric identity — 2D disc observation: S^2 projection is the holographic principle made directly visible — Birkeland current double helix mechanism: long-range attraction + short-range repulsion = identical force balance at plasma and molecular scale — Clifford rotation's two orthogonal planes = the two coils of the double helix at every scale — Plasma nodes as computational network (Birkeland, double layers, collective modes, filamentation) — Chirality as directed field process: CISS effect connects heliospheric field chirality to L-amino acid homochirality — Consciousness revised to Level 0 foundational, not emergent; Earth = depth of self-recognition, not origin — Sidereal/synodic period formulae: Loom $\times$ geometry = the implicate order's computational output Companion documents: field_cycling_not_orbital_motion.md; birkeland_cosmic_dna_field_architecture.md; 4pi_core_framework_number.md; solar_organism_human_body_mapping.md; plasma_architecture_solar_organism.md; consciousness_venus_phi_broadcast.md