



Metaphysics revelations

*Symbolism of end times in ancient and holy scripture,
high-energy physics phenomena and scalar electromagnetics*

(2001-2008) Belgrade, Serbia

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Foreword

*". . . I looked, and lo,
in heaven an open door!
[And a voice] like a trumpet, said,
Come up hither"
Revelations 4:1*

There exists within mankind, in these fallen times, a pull of destiny towards a new world. Humans have united in purpose of eradicating the roots of evil. We should bring the question of motives behind this push of civilization towards unification. Could this innate drive for re-uniting with the absolute existence, which exists inside all of our beings give birth to a new human race, or is this the point of no return for the homo-sapiens, a point which had clearly been stood upon numerous times in the history of civilizations?

A significant portion of men and women has finally opened the stores of forgotten knowledge embedded in the code of our physical existence. They see and feel beyond the illusion of physical existence and walk towards infinity. Everyone should have this opportunity to cross the bridge to global consciousness. It is a step to realizing what we have lost as we started to suppress the feeling of eternal spirit inside us. We are true cosmic beings, fully capable of breaking the curse of our sin.

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Esotericism

In its broadest manifestation esotericism is an approach which asserts the existence of something concealed and hidden, whose knowledge or experience is of decisive or even redemptive import. The esoteric mentality is embodied in various forms of thought. It appears in theological and magical contexts, in which hidden knowledge of the godhead and the universe are transmitted, or else as a method of exegesis of canonical works disclosing an encoded level of meaning. Esotericism also has a secular form, in which it serves as the basis for socio-political explanations which assume that nothing is as it appears, and that society is, in fact, governed by secret organizations pulling on hidden strings. In its political contexts, the esoteric mentality is a breeding ground for a multitude of conspiracy theories, which assume hidden centers of power behind what appear to be individual, unrelated actions. The psychoanalytic conception, which maintains that people's actions are guided by a repressed, guarded region of consciousness controlled by an inner censor, is also a complex instance of the esoteric outlook.

Some theories of the universe or of society are extremely remote from the revealed surface of things. Modern physics postulates the existence of particles which have never been observed; or the Marxist perspective, which maintains that the ideological and economic structure of society is determined by the level of development of means of production. Yet, the enormous gap between these theories and what is revealed on the surface is not sufficient for them to be considered esoteric teachings. In addition to the existence of such gaps, esoteric conceptions claim that the existence of the esoteric is dependant on intentional concealment and camouflage (which does not hold true, for example, in the case of modern physics), or that essentially, the esoteric may only be expressed through indirect symbols. We might say that what is common to all types of esotericists is the metaphor of the "key". Esotericists do not understand, interpret and explain; rather, they open, decipher, liberate or expose.

The remarkably varied structure of esoteric knowledge includes multiple complex techniques for approaching the hidden: the adoption of a precise and strict method of thought in order to penetrate the deep metaphysical structure of being, entering alternative states of consciousness to facilitate insights from other planes, the use of various magical techniques, the interpretation of dreams and their analysis for the purpose of revealing the repressed level of the ego, in order to overcome internal censorship, and many, many others.

Aside from the esoteric mentality, which postulates the existence of the esoteric and seeks to attain it, esoteric teachings form a body of knowledge whose dissemination is severely restricted. These restrictions are meant to carefully screen the listening public in the case of oral transmission, and to impose limits on copying

and circulation, and later on in time, on the printing, of the written word. As a result of these restrictions, complex strategies of encoding and double speech and writing were developed, which were supposed to enable the transmission of secret information to the worthy elect, without preliminary filtering of the congregation of listeners or readers. This was accompanied by an intricate network of unique interpretative techniques, which were indispensable for penetrating the deeper level of things. Naturally, strictly esoteric traditions were not written down at all. Oral transmission enables control over the identity of the receivers and constant supervision over what is revealed and clarified through the medium of conversation. Writing, even if in veiled form, is a relaxation of the strictest restrictions of esotericism. One who writes down his words seeks to transcend the gaps of space and time between himself and his readers, who are not his immediate conversational partners. Once the words have been committed to writing, he may no longer restrict access to them, unless he took care to write in a veiled or hidden fashion. The restrictions on the dissemination of knowledge, and the relation between knowledge, status and power give esotericism an important role in determining social stratification. Esotericism is, among other things, a means of protecting the privileged position of a group in the society by limiting the dissemination of the knowledge that endows it with its status.

For many of its devotees esotericism is as well a way of protecting the multitude or the uninitiated from the destructive power of truth. At the root of the elitist political esoteric outlook as Leo Strauss developed it, is the idea that social order will collapse under complete conditions of transparency. If philosophy is the love of truth as a way of life, it has to go underground since it poses a serious threat to the social order which is inherently established on myth. The problem of transparency extends beyond the political structure and institutions to the self. It might be argued that not only social order and institutions will collapse under complete conditions of transparency, but the self will be undermined if it becomes completely transparent to itself. After all, repression and its relative self-deception, are necessary forms of self-maintenance. It is no wonder that in the history of esoterically minded ideologies, redemption is conceived to be the achievement of transparency. Both within mystical tradition, but as well within psychoanalytic conception of health and harmony. (It is worthwhile noting that the word *apocalypse* means *unveiled*). Esotericism as a general problem stands therefore at an interesting intersection of hermeneutics and political theory. It is both presumed to be a strategy of reading and interpreting texts, as well as a basic mode of power and its relationship to truth

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Mankind and the emerging galactic consciousness

It is our human body that responds to cosmic influences in a distorted fashion. We are left connected with the universal harmony through tones of spirit, or through something physicist denote as dark matter, anti-matter or various other forms of still unexplained matter. The common material world error of separating humans as entities with no energy interaction is a product of lost senses, a product of vain effort to project ourselves to the outside world. It seems that we have lost the living system in which our existence had been focused on life in sync with the universe, birthed from the essence of primordial matter.

While this “great coincidence” or “the will of god” which put us in this blindfolded situation is nearing an inevitable complete breakthrough to our plane of being a drive for action surfaces. As we gain clear insight into the principles of the galactic order, through thorough practice of parallelism between metaphysics and religion on one side and modern science on the other side, two distinctive paths are present to humans. The subtle moment of everlasting recursion could lead us to self-destruction and the loss of divine knowledge once more. But with determined action to give a final blow to this world of duality, this battle between good and evil, and free our souls of eons long imprisonment.

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Quantum impact of the leap towards one world

What does really stand behind the globalization process? The global consciousness now

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Breaking the reincarnation cycle

Archetypal man will not regain his first splendor and freedom unless he separates himself from this matter which binds him everywhere. For this to occur, all his individual cells (individual human beings) will have, after their natural death, to reconstitute the archetype by REINTEGRATING, thus escaping the cycles of reincarnation.

Only then will the Microcosm remake the Macrocosm. The individual human beings, who are but the reflection of the Archetype, will equally be the reflection of the divine as the Archetype himself is the reflection of God, of the Word or Logos, of the "Spirit of God" mentioned in Genesis.

To escape the cycles of reincarnation in this infernal world, man must detach himself from everything that attracts him to matter as well as disengage himself from the slavery of material sensations. He also has to elevate himself morally. The fallen entities, however, constantly fight man's tendency towards perfection by tempting him constantly so as to make him stay in this world where they can maintain their rulership over him.

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Gravitational lenses theory, astral planes and quantum consciousness

What is a lens? It's a piece of glass or other transparent material shaped so that light rays which pass through it are "bent", or diverted from their original paths. Light rays "bend" when they pass through a transparent material because they travel a bit slower inside the material. Is there any other way to "bend" light rays? Yes! Gravity can alter the path of light rays, too. A black hole, after all, is simply an object with a gravitational field so strong that even photons are unable to escape from its vicinity. Any light ray which attempts to fly outwards from a black hole is stopped, and turned back into the black hole. That's an extreme case of "bending." But there are more modest situations, in which the photon isn't stopped dead, but merely nudged a bit so that its direction (and energy) change slightly. For example, if we place a very massive object near the path of an incoming light ray:

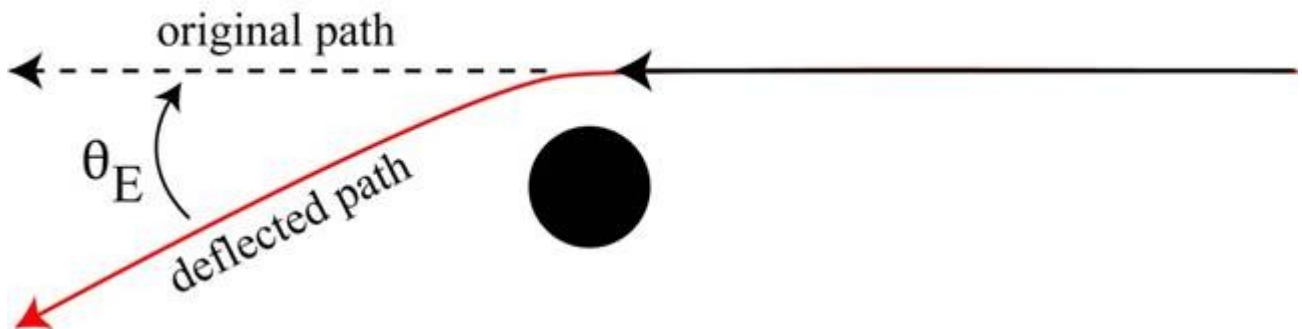


Figure 1: Gravitational lens deflection of light rays

The angle **theta** by which the light ray is deflected depends on two factors: its closest approach to the massive object (called the *impact parameter*, and denoted by **b** in the diagram), and the mass of the lensing object, **M**. As you might guess, it takes both a very massive lens, and a very close approach, to cause any significant deflection. If an intervening mass lines up *perfectly* with a background source, it can bend the light from the source which would otherwise go far above us to come to us; and bend the light which would otherwise go far below us to come to us.

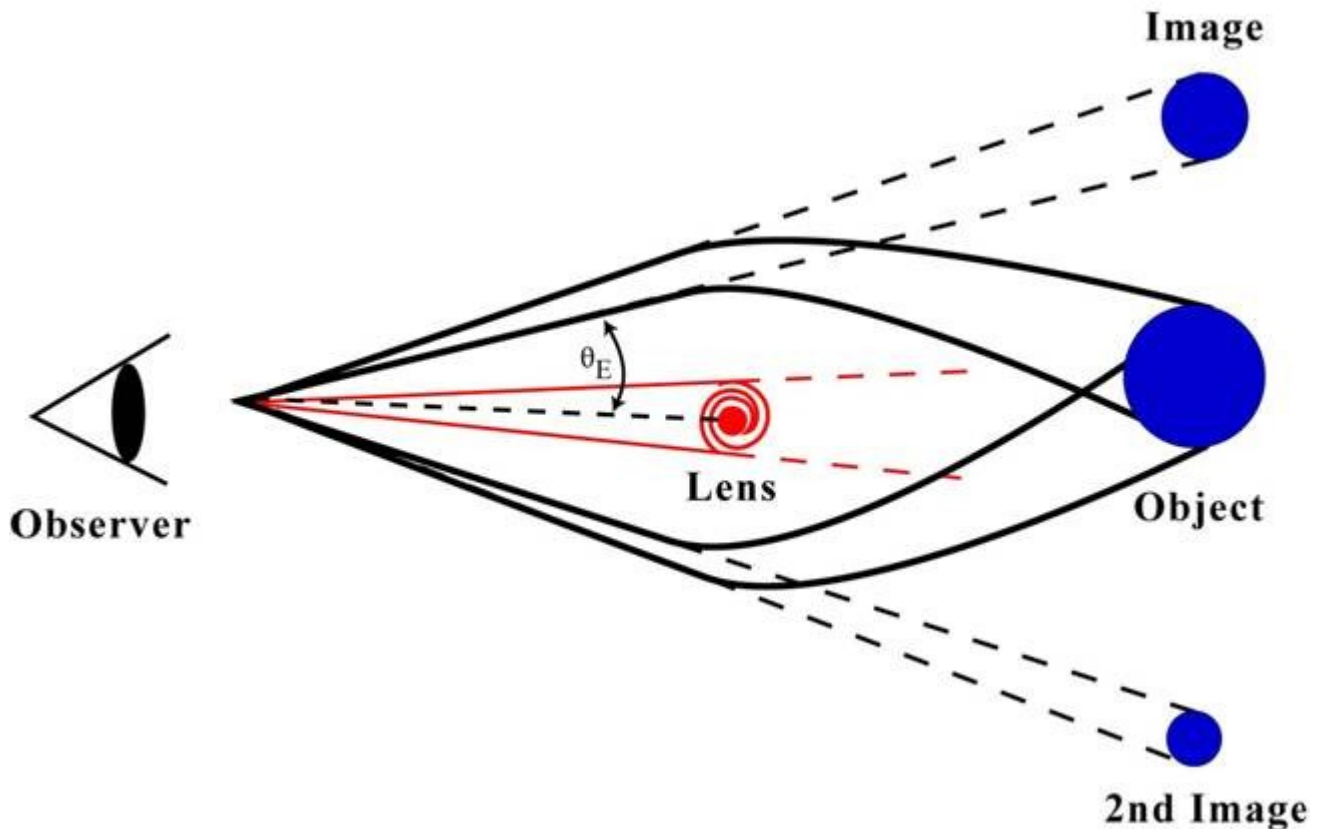


Figure 2: Curvature of conscious perception due to the presence of a

To us, it looks like there is light coming from an angle **theta E** above the actual source ... and from an angle **theta E** below the actual source ... and, in fact, from an angle **theta E** to the left, and the to the right, and everywhere in between. The result is that we see a ring of light surrounding the actual position of the source:

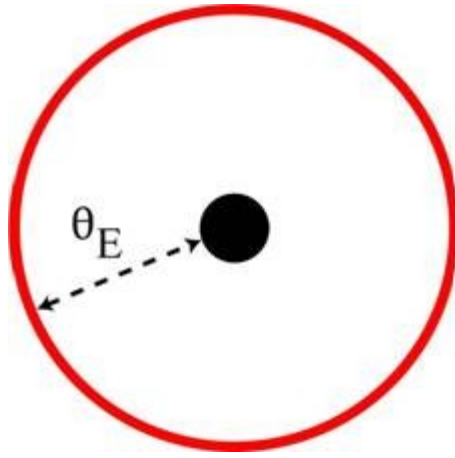


Figure 3: Appearance of an Einstein ring around a distant gravitational lens

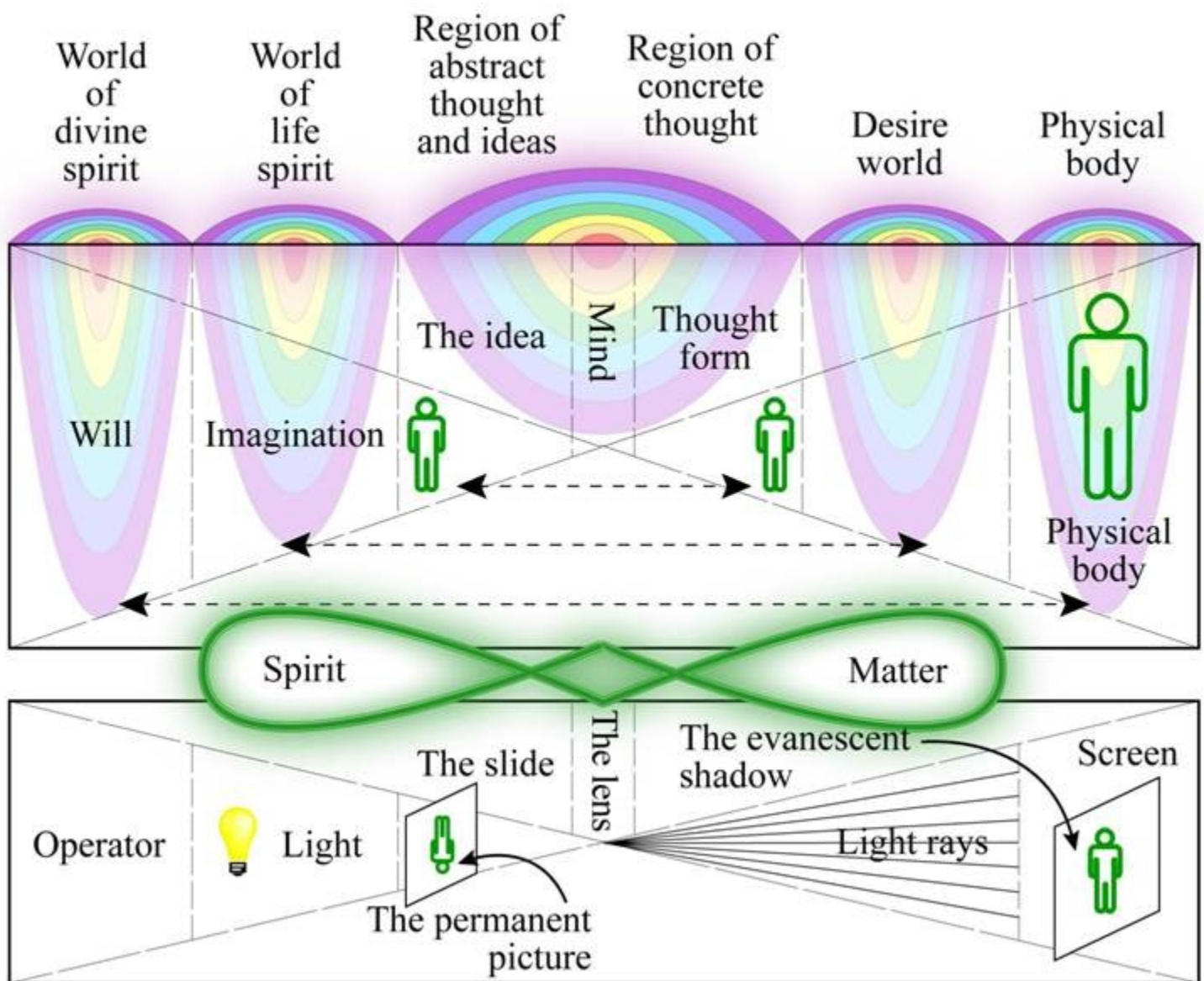


Figure 4: The mind mirror

Etheric pressure, pressure of Zero-Point energy, curvature of light, curvature of perception, every pulsating entity vibration as “god’s word”, frequency as god’s revelation in holy scripture

Consciousness trapped in the form of electro-magnetic energy inside the human body. Astral body, Etheric body as a quantum consciousness vehicle driven by the curvature of local space-time pressure. Multiple dimension transport field, the approach to black hole singularity as holy initiation. Planetary astral body and levels of electromagnetic purity, earth-sun space-time curvature, galactic bulge as the natural doors to heaven. Density of Etheric matter as levels of the astral plane.

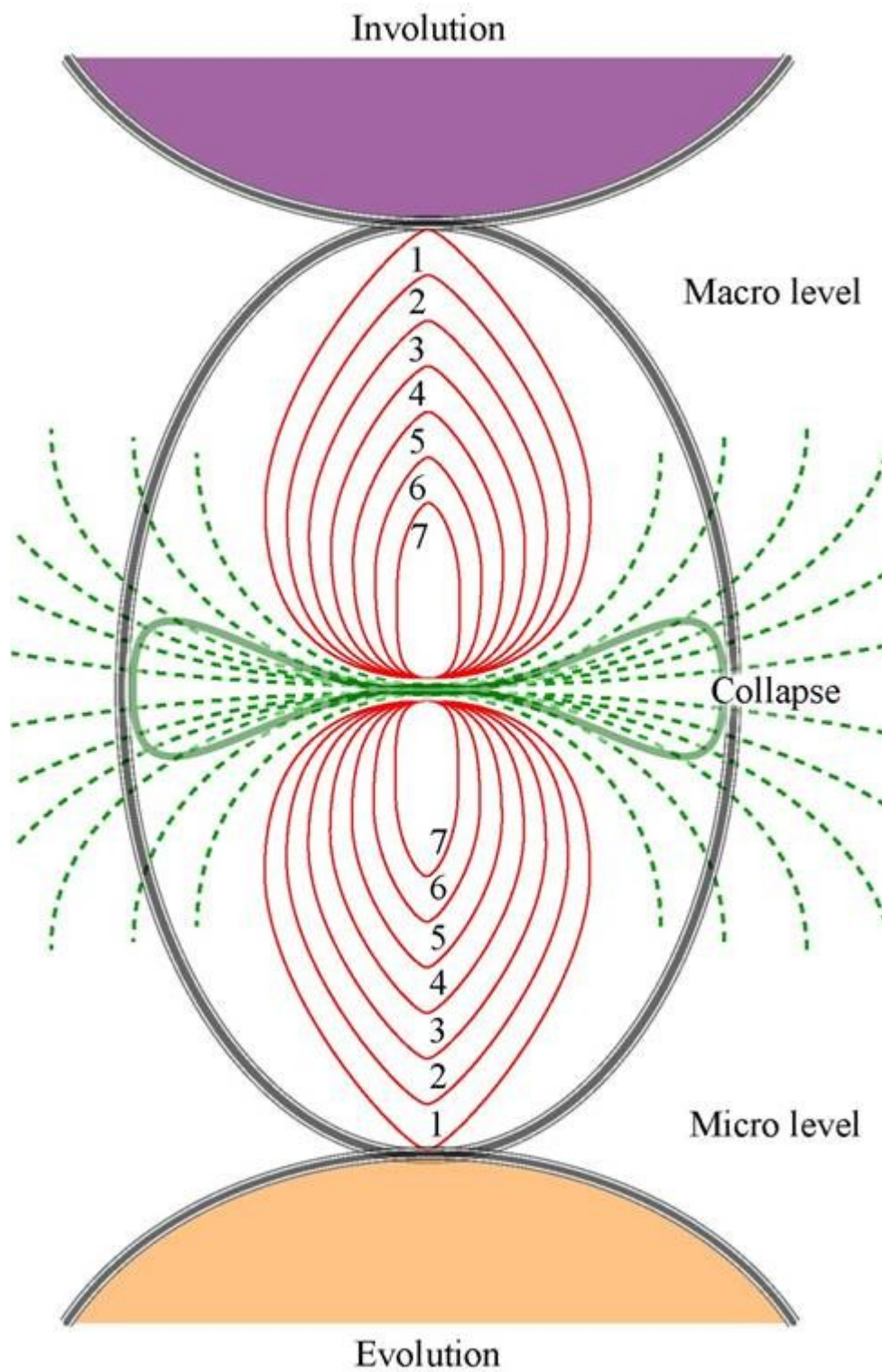


Figure 5: Levels of existence, levels of materialization of singularity, collapse of the wave function, waves/particles

What is the psycho-physiological basis of the super-consciousness state that characterizes some altered states of consciousness? Based on the proposed model, we can analyze the following mechanisms:

- *Inhibition of sensory and motor modules* which have no relevance to the current focus of attention. As an example, we can consider focusing on music, and having inhibited other senses and physical consciousness. Consequently, decreasing the flow of sensory information releases new energy within the available energy budget; decreases system bus overhead in favor of active processes; and decreases system metabolic noise.
- *Stable focus of attention* independent of its content. The perpetuated effort to stabilize the focus of attention leads to the willingly regulated limbic system and a weakening of its feedback on the flow of consciousness. After that change, normal consciousness is not the "fighter for ends" anymore, while a new, extended, consciousness represents a "detached observer" capable of observing his environment as it is. This leads towards "ultimate reality", without the sympathetic burst of unsupervised ANS.
- *Stabilization of basic physiological rhythms* and constituting consciously controlled center of physical consciousness. As a consequence, the global information exchange cycle is increased for an amount necessary to control these rhythms in a normal state, and metabolic noise becomes discrete instead of wide-band. It is shown that the stabilization of physiological rhythms stabilizes (central nervous system) CNS rhythms, as well. We can compare this effect as an effort to look at a far-away scene from a boat on a lake. If waves rocking the boat were irregular it would be very hard to concentrate. On the other hand, if waves are regular (no matter if they are large) it would be much easier to maintain a stable focus of attention. It could be considered that stable physiological rhythms could provide the foundation on which extended consciousness arises. It has been shown that insights objectively characterized as sudden and instantaneous are preceded by a characteristic pattern of brain electrical activity.
- *Decreased energy consumption*. With stable consciousness, decreased energy consumption decreases metabolic noise, thereby bringing a greater awareness of subtle phenomena.

Quantum consciousness symbolism in holy scripture

"In Cabalistic philosophy the universe consists of God's thought; thought is expressed in speech; speech is composed of letters; hence the Letters are the ultimate constituents of Things.

The "gates" are the 231 biliteral combinations of the Hebrew letters (doubles omitted; 231 permuted pairs added by later writers); they represent the primary combinations of the highest manifestations of the divine Being which are at once the forces which make other things, the material of which they are made, and the channels through which the divine energy streams forth into the lower world. A single quotation from the Sepher Yezirah, will suffice:

He combined (the Letters), weighed them, exchanged them, Aleph with all and all with Aleph, Beth with all and all with Beth, and they go (each) all the way around (the Alphabet). And they are found (comprised) in 231 gates, and everything formed and everything uttered is found to proceed from one Name."

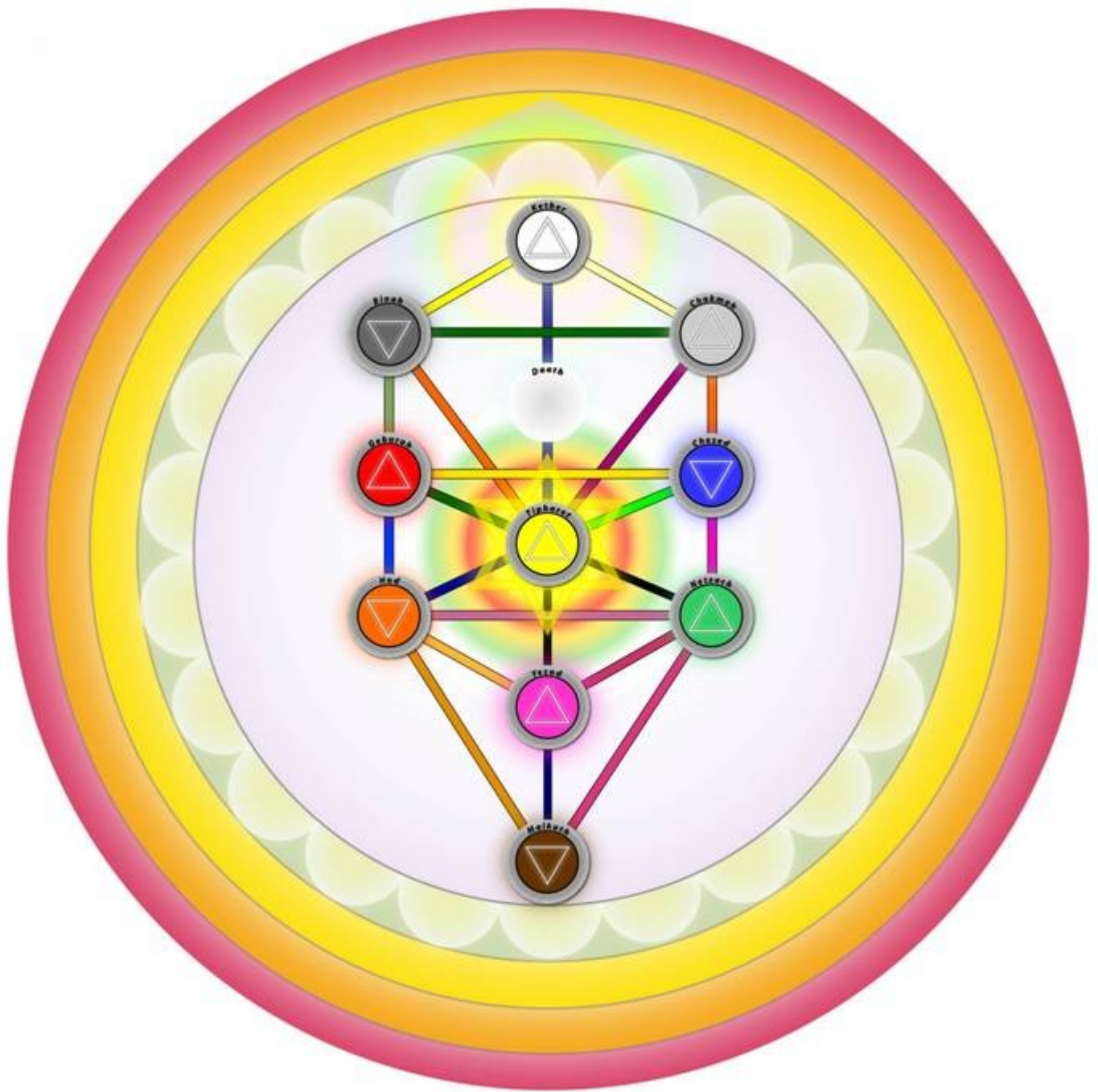


Figure 6: Sephirot – Qabalistic tree of life

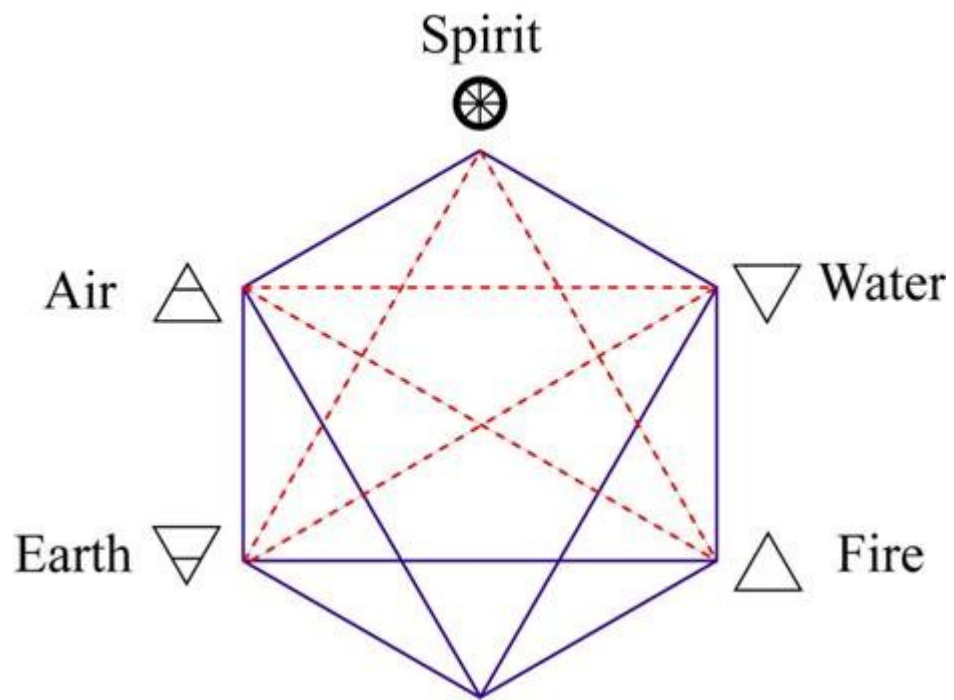


Figure 7: Quality of matter

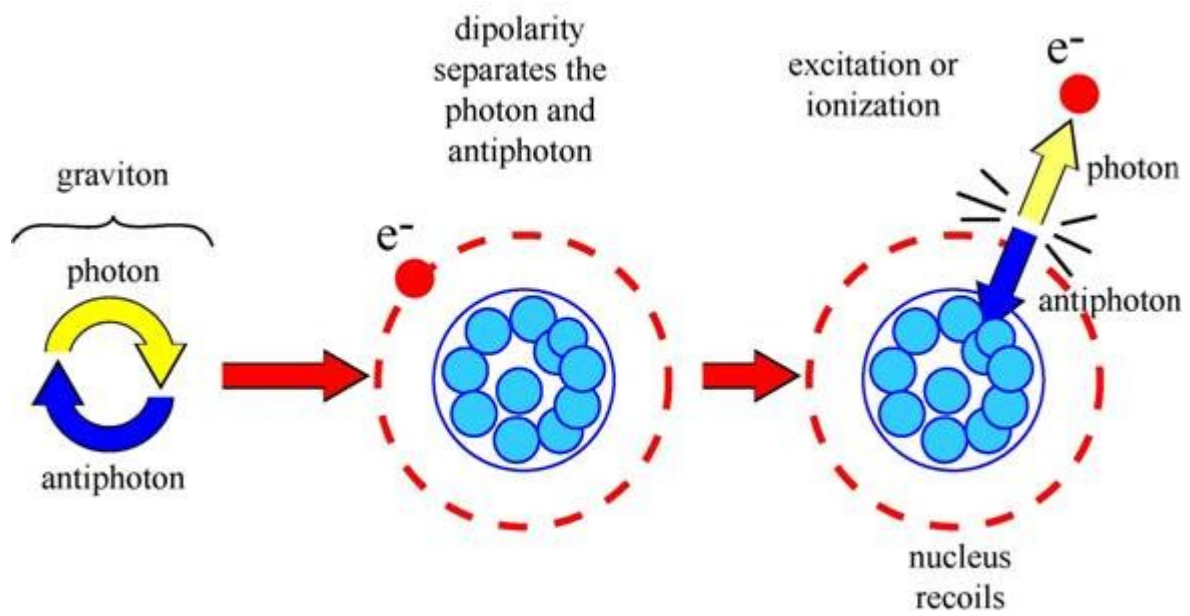


Figure 8: Graviton interaction with matter produces the photon interaction and Newton's third law reaction

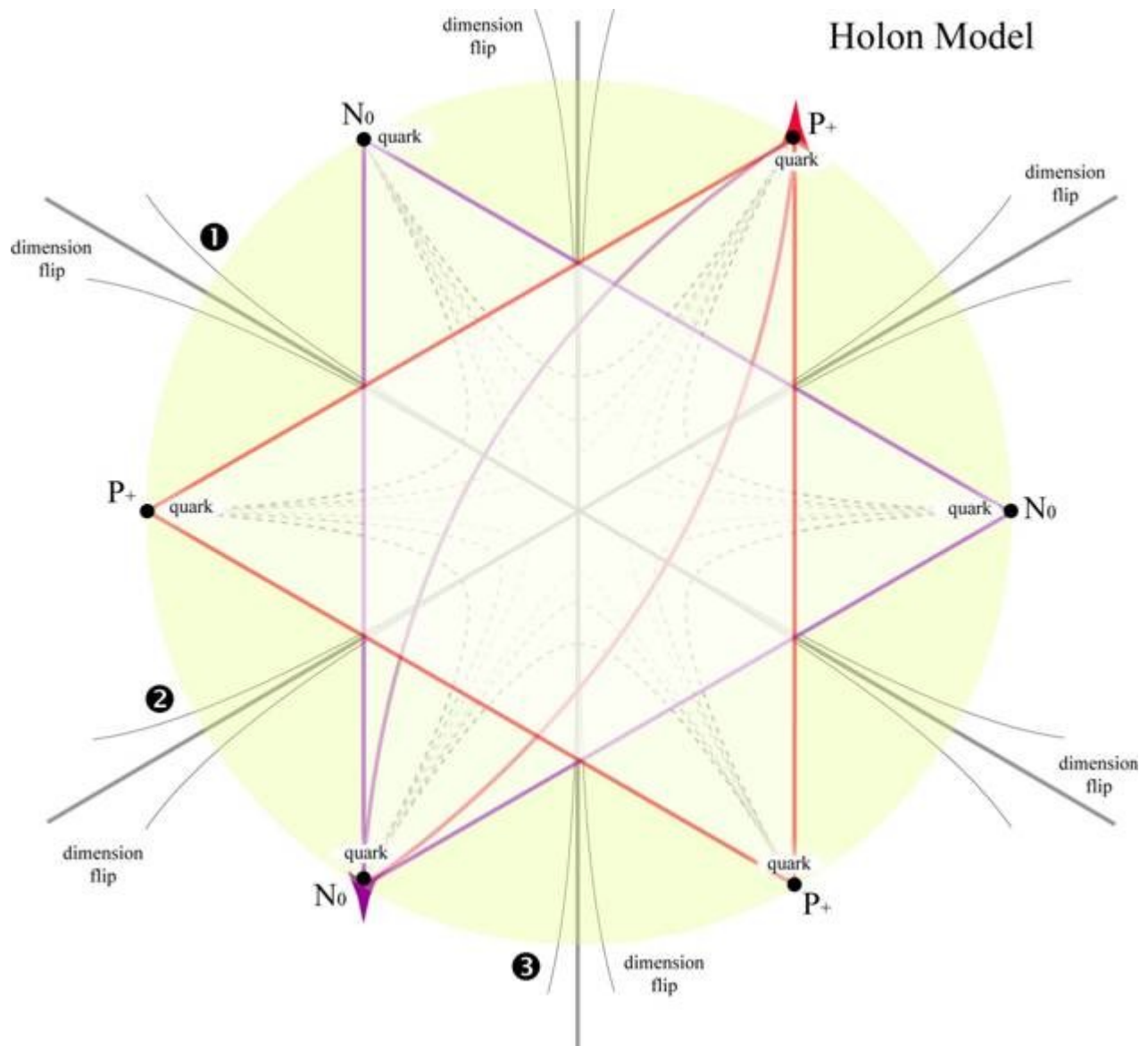


Figure 9: Quantum Holon as the basic holographic fabric of universe

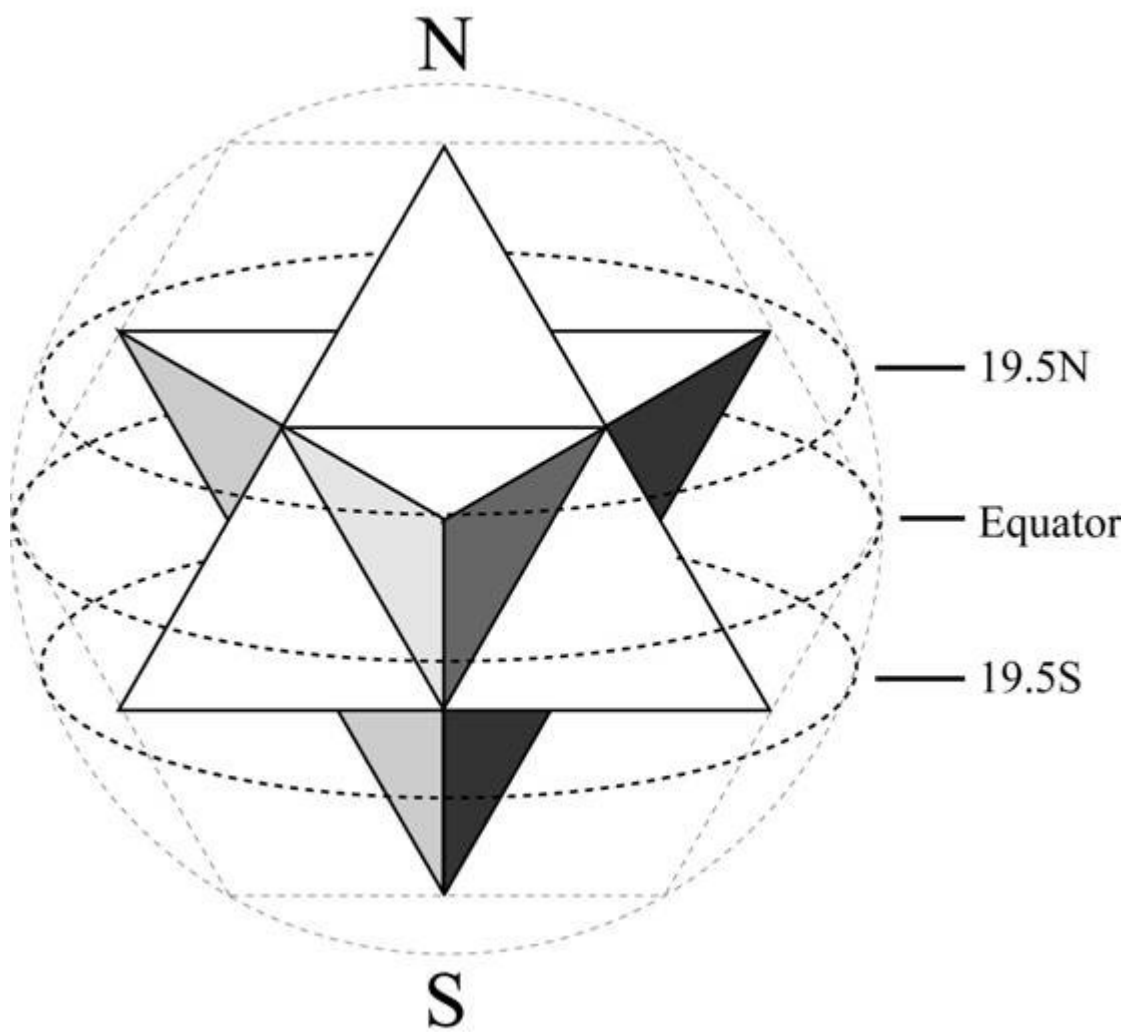


Figure 10: Rotating *Merkaba* field

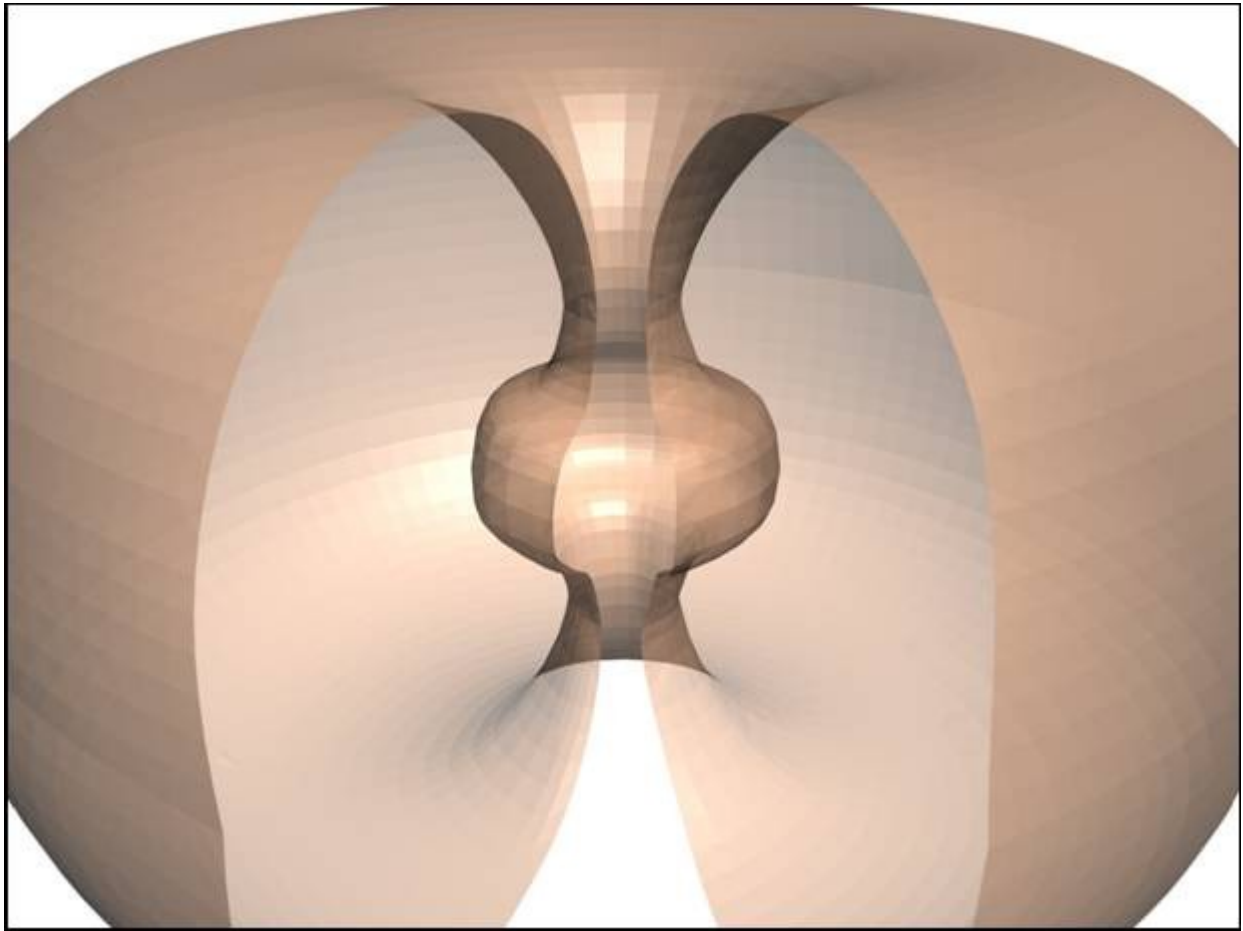
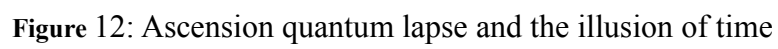


Figure 11: Holon of our universe and the gateway (dimension flip) to the multiverse holonet



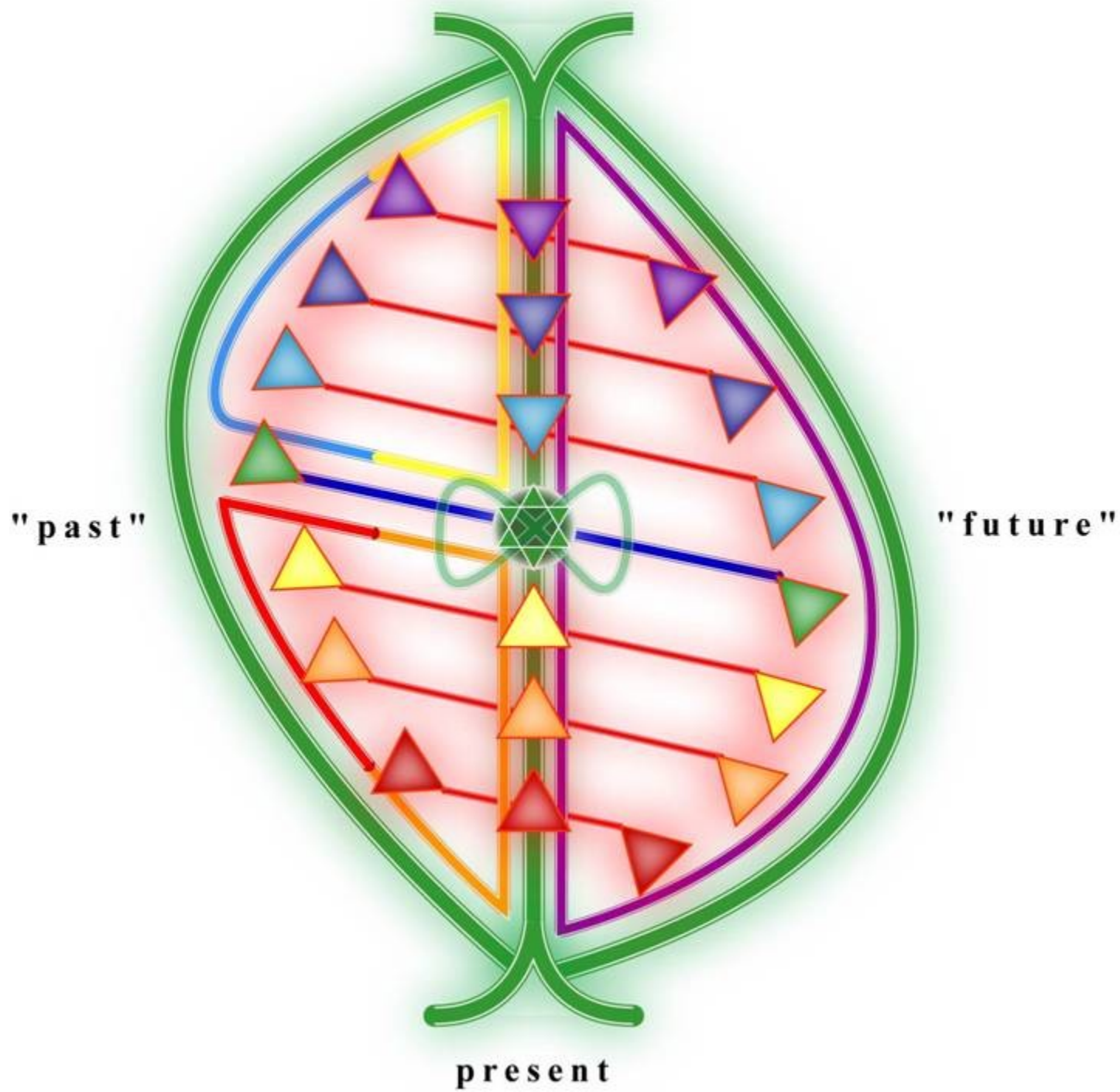


Figure 13: Human quantum vehicle

Harmony and vibration of the Universe

$$\frac{1}{2} AB = BC = CD, AE = AD$$
$$EB : AE = AE : AB$$

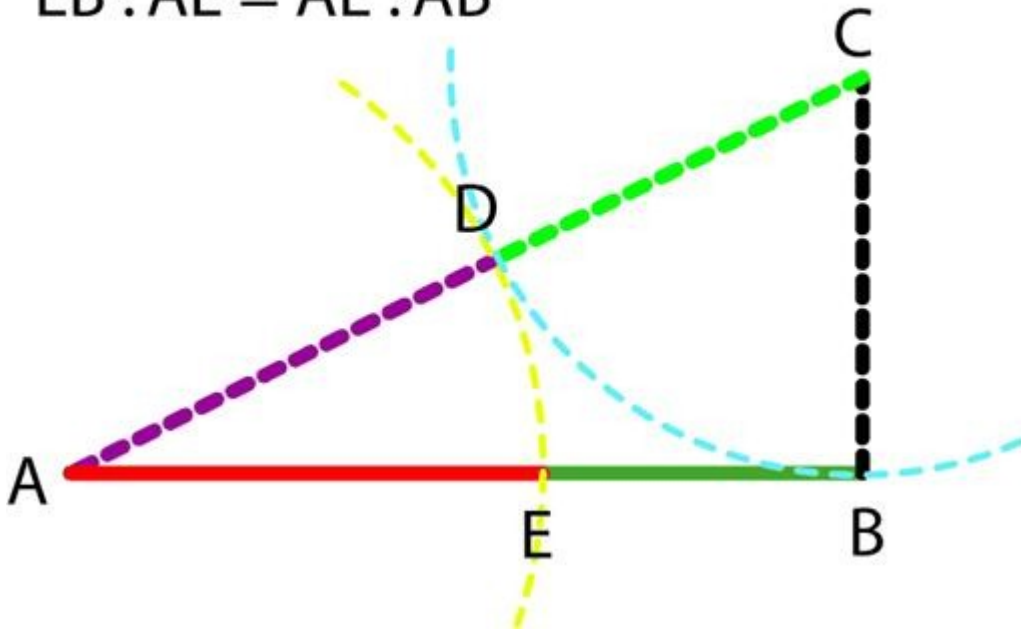


Figure 14: The Golden Mean ($\phi=1.1612$)

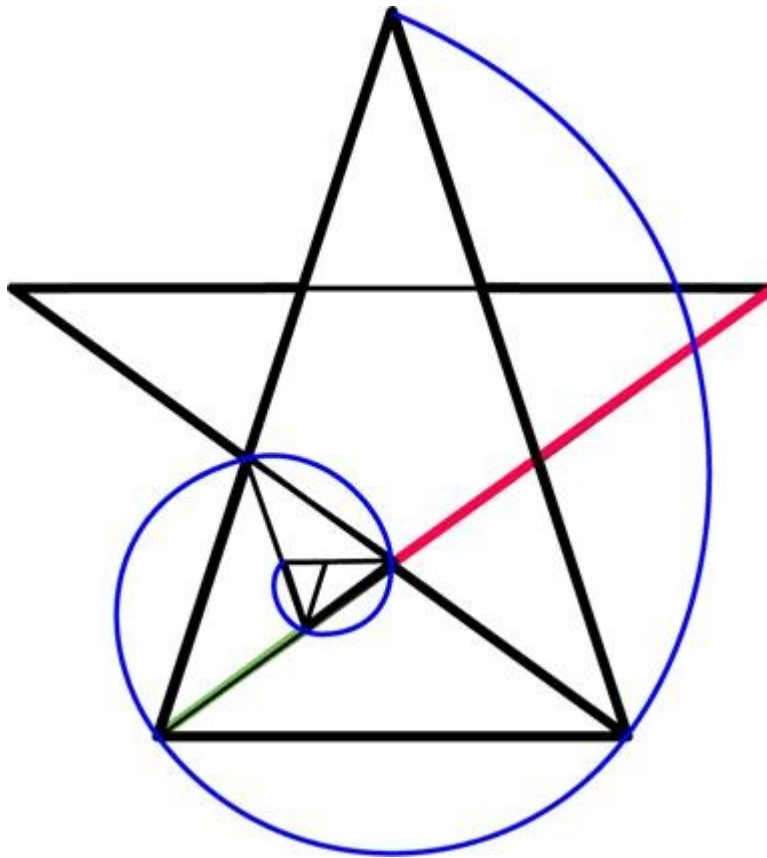


Figure 15: The Pentagon (phi spiral)

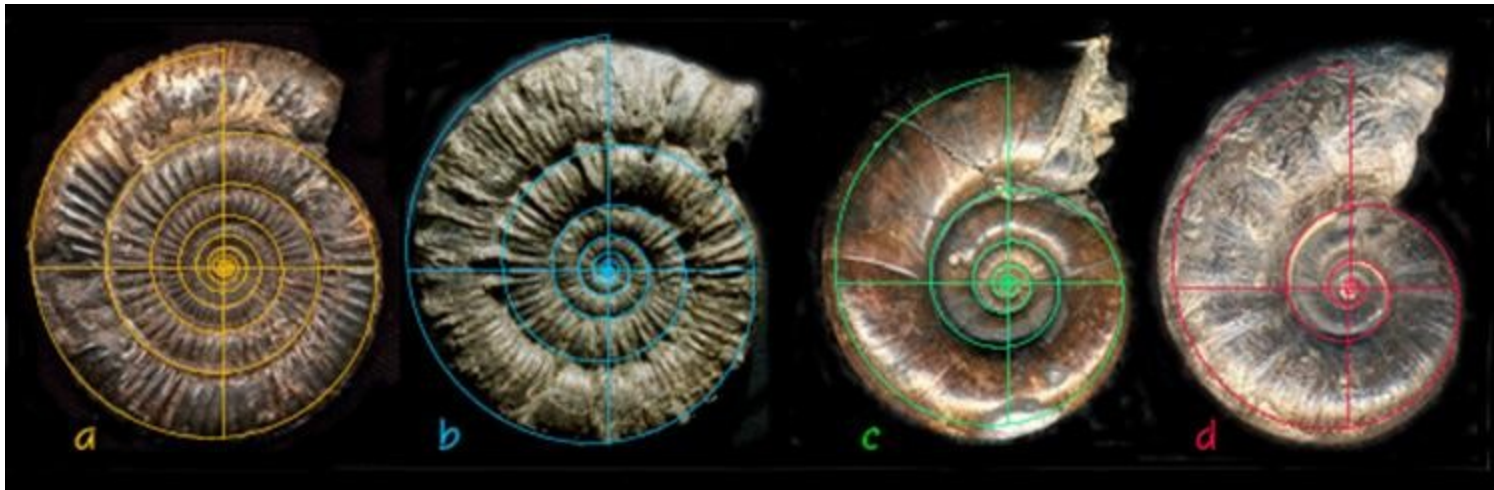


Figure 16: Ammonites and the Pheidian Planorbidae I ($k = \text{Phi}$, $\text{Phi}^4/3$, $\text{Phi}^5/3$ and Phi^2)

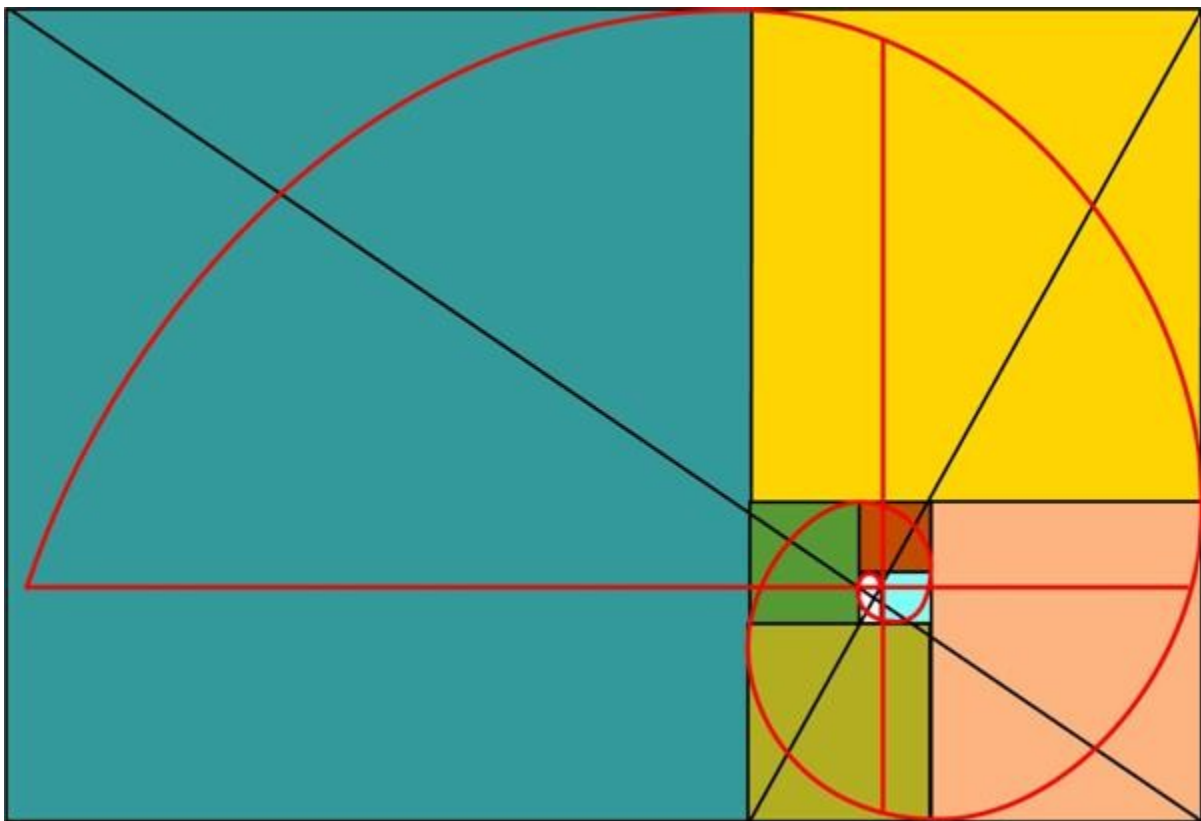
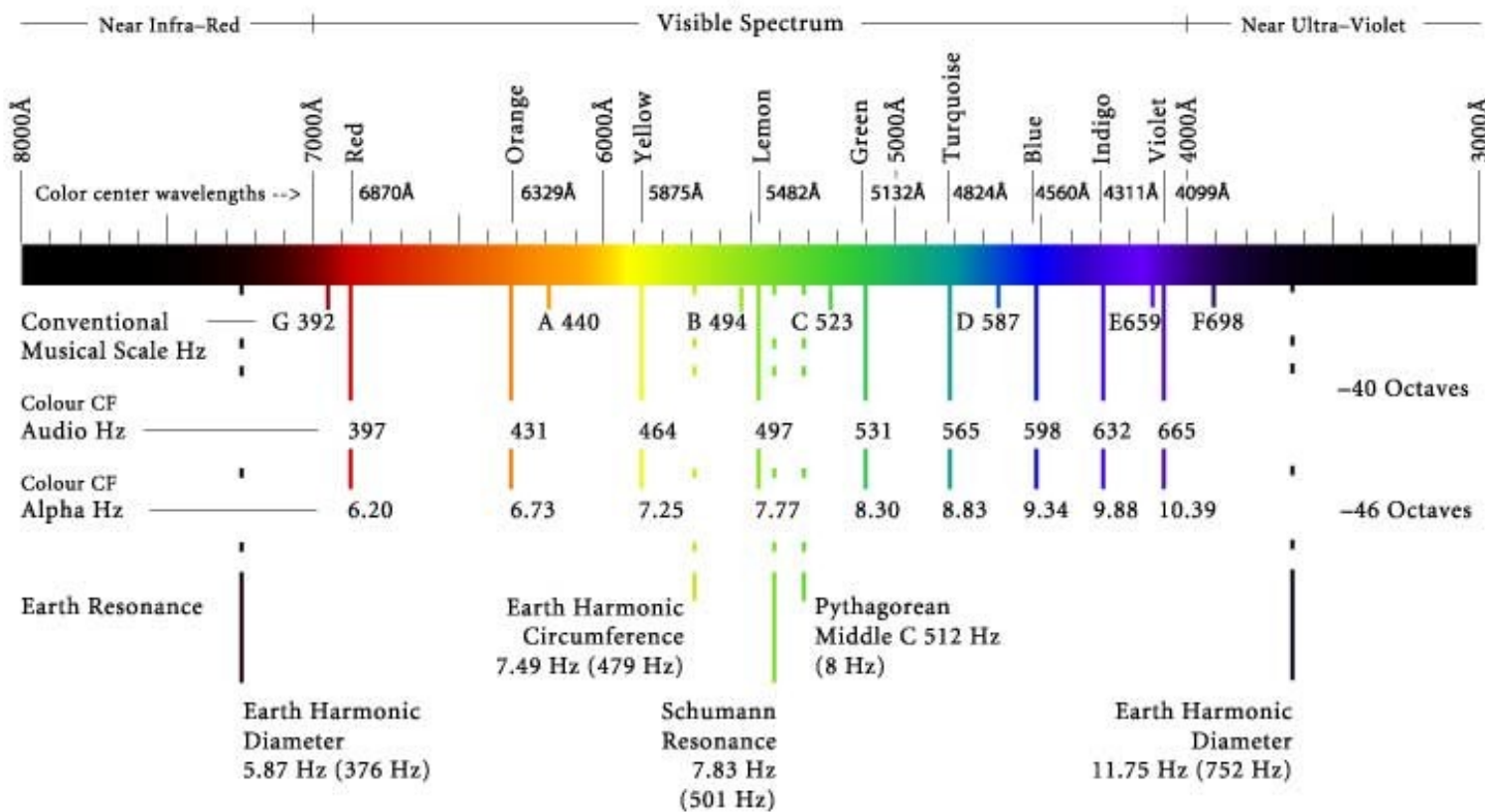


Figure 17: Equi-angular spiral ($k=\text{phi}^4$)

Light, Sound & Alpha Brain Wave Correspondences



Audio frequencies are 40 octaves down from the visible light spectrum. Alpha brain wave frequencies are 46 octaves down from the visible light spectrum. Light (color) is measured by its wavelength (in Angstroms) and must be converted to frequency before finding a color's corresponding lower harmonic frequency.

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Figure 18: Light, sound and alpha brain wave

	• 1.1	••• 2.9	•• 3.11	•••• 4.11	••• 5.11	•••• 6.11	•••• 6.21	•• 8.9	— 8.19	••• 9.19	•• 10.19	••• 11.19	•• 1.23
	•• 1.7	•••• 2.1	••• 3.12	•••• 4.12	•••• 5.12	•• 6.12	— 6.22	•• 8.10	•• 8.20	••• 9.20	•• 10.20	• 2.23	••• 12.21
	••• 1.8	••• 2.10	•••• 3.1	•• 4.13	— 5.13	•• 6.13	•• 7.7	•• 8.11	•• 8.21	• 9.21	••• 3.23	•• 11.20	••• 12.22
	•••• 1.9	•• 2.11	•• 3.13	•• 5.1	•• 5.14	•• 6.14	•• 7.8	• 8.12	•• 8.22	•• 5.23	••• 10.21	•• 11.21	•• 13.7
	— 1.10	•• 2.12	•• 3.14	••• 4.14	•• 7.1	• 6.15	•• 7.9	•• 8.13	••• 7.23	•• 9.22	•• 10.22	•• 11.22	•• 13.8
	•• 1.11	••• 2.13	•• 3.15	• 4.15	•• 5.15	•• 9.1	•• 7.10	•• 9.23	•• 9.7	••• 10.7	•• 11.7	— 12.7	•• 13.9
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	•• 1.13	•• 2.15	••• 3.17	•• 4.17	•• 8.1	•• 11.1	•• 7.12	•• 11.23	•• 8.23	•• 10.9	•• 11.9	•• 12.9	• 13.11
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	•• 1.15	••• 2.17	•• 4.1	•• 4.18	•• 5.18	•• 13.1	•• 7.14	•• 13.23	• 9.10	•• 10.10	•• 4.23	•• 12.11	•• 13.13
	•• 1.16	— 2.18	•• 4.6	•• 4.19	•• 5.19	•• 13.6	•• 7.15	•• 13.28	•• 9.11	•• 10.11	•• 4.28	•• 12.12	•• 13.14
	•• 1.17	•• 2.19	•• 3.19	•• 6.6	•• 5.20	•• 12.6	•• 7.16	•• 12.28	•• 9.12	•• 6.28	•• 11.11	•• 12.13	•• 13.15
	•• 1.18	•• 2.20	• 3.20	•• 4.20	•• 8.6	•• 11.6	•• 7.17	•• 11.28	•• 8.28	•• 10.12	•• 11.12	•• 12.14	•• 13.16
	• 1.19	•• 2.21	•• 3.21	•• 4.21	•• 5.21	•• 10.6	•• 7.18	•• 10.28	•• 9.13	•• 10.13	•• 11.13	•• 12.15	•• 13.17
	•• 1.20	••• 2.22	•• 3.22	•• 4.22	•• 5.22	•• 9.6	•• 7.19	•• 9.28	•• 9.14	•• 10.14	•• 11.14	•• 12.16	•• 13.18
	•• 1.21	•• 3.7	•• 4.7	•• 5.7	•• 7.6	•• 6.16	•• 7.20	•• 8.14	•• 7.28	• 10.15	•• 11.15	•• 12.17	•• 13.19
	••• 1.22	•• 3.8	•• 4.8	•• 5.6	•• 6.7	•• 6.17	•• 7.21	• 8.15	•• 9.15	•• 5.28	•• 11.16	•• 12.18	•• 13.20
	— 2.7	•• 3.9	•• 3.6	•• 5.8	•• 6.8	• 6.18	•• 7.22	•• 8.16	•• 9.16	•• 10.16	•• 3.28	•• 12.19	•• 13.21
	•• 2.8	•• 2.6	•• 4.9	• 5.9	•• 6.9	•• 6.19	•• 8.7	•• 8.17	•• 9.17	•• 10.17	•• 11.17	•• 2.28	•• 13.22
	•• 1.6	• 3.10	•• 4.10	•• 5.10	•• 6.10	•• 6.20	•• 8.8	•• 8.18	•• 9.18	•• 10.18	•• 11.18	•• 12.20	•• 1.28

Figure 19: Mayan Tzolkin calendar

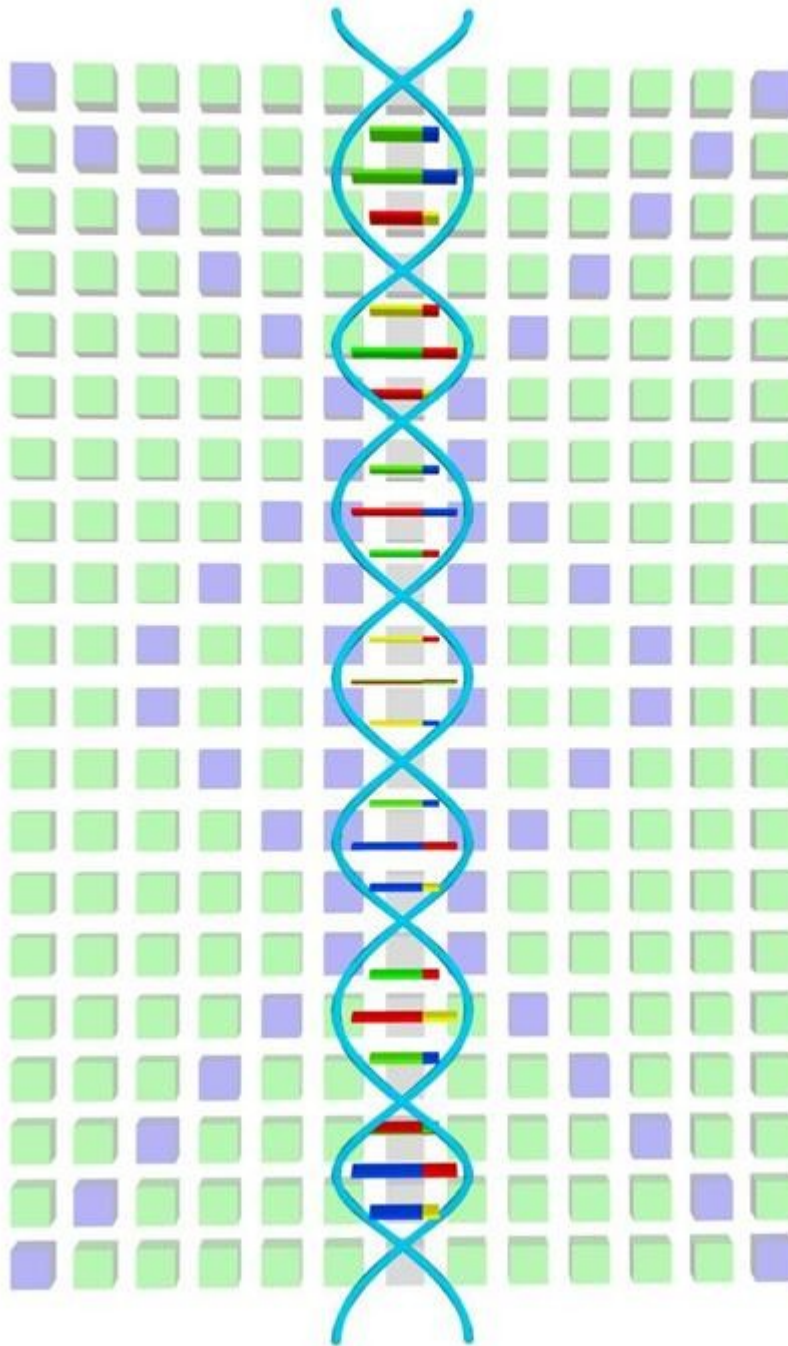


Figure 20: DNA - stellar harmonics encoding

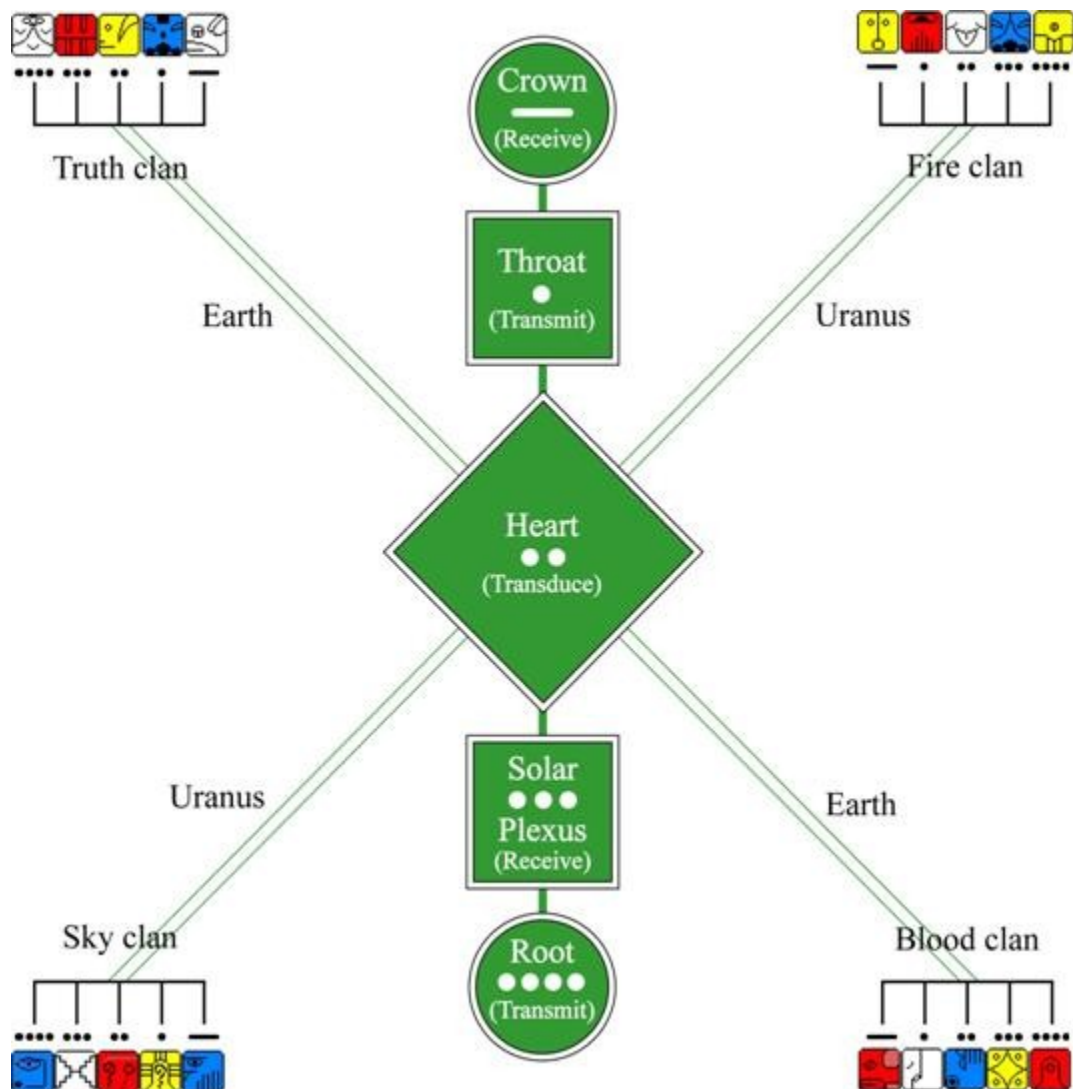


Figure 21: Mayan holon

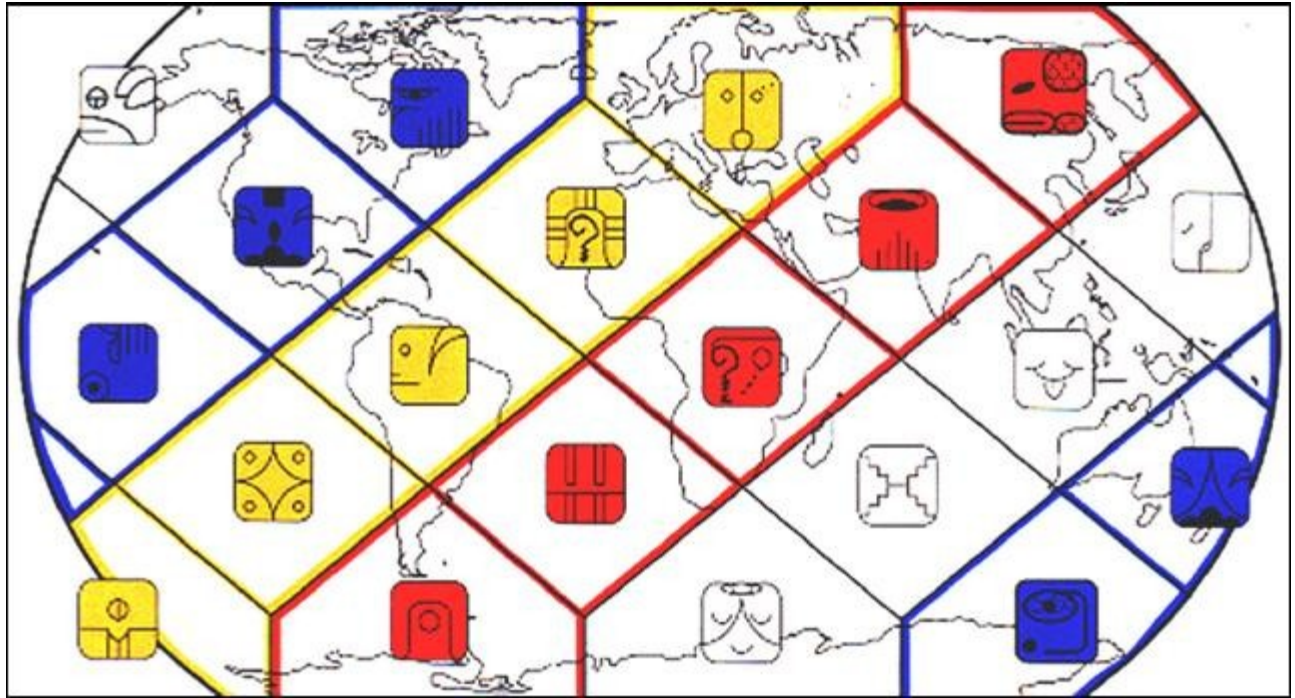


Figure 22: Mayan concept of the Earth holon

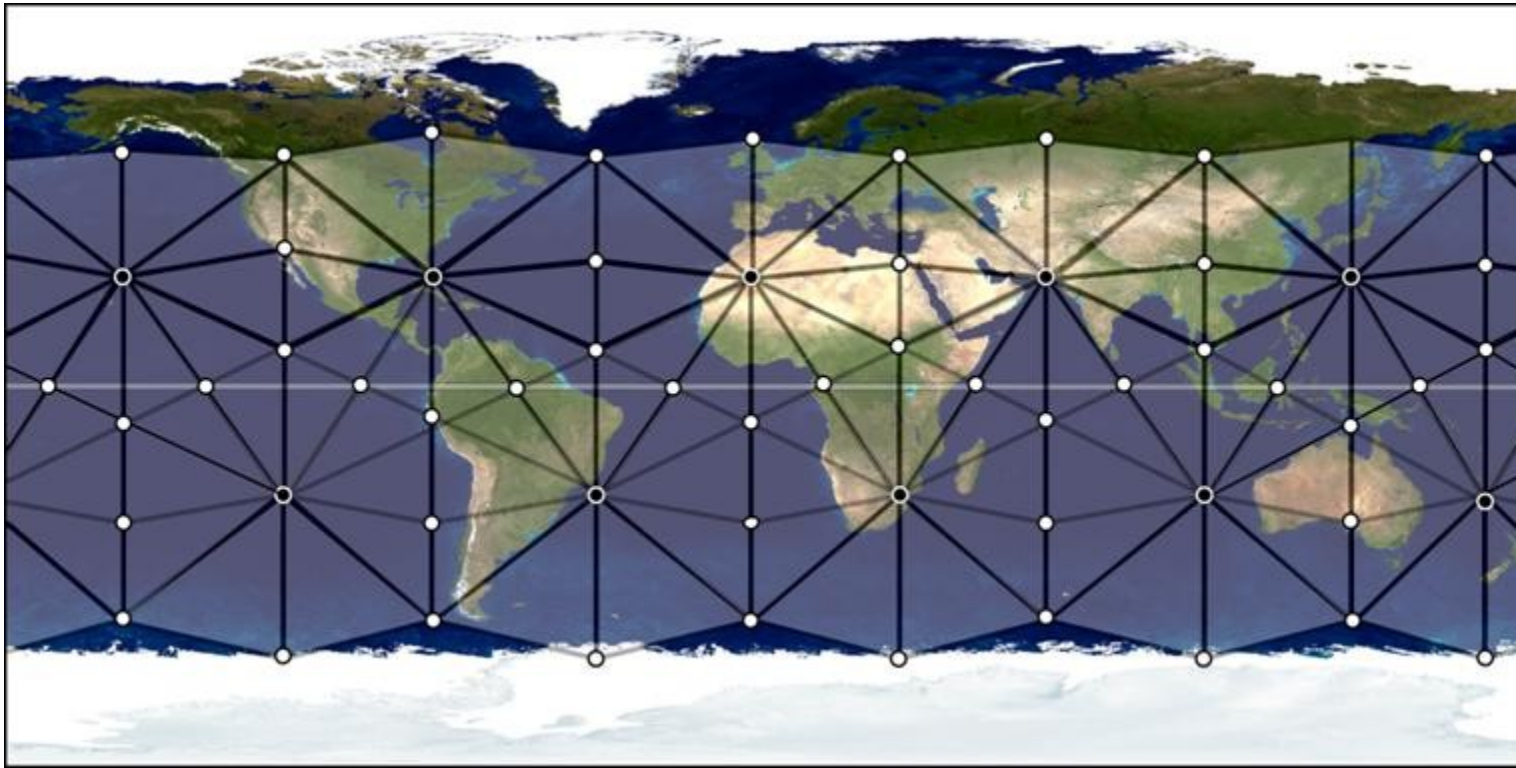


Figure 23: Planetary grid system – Icosahedron projection

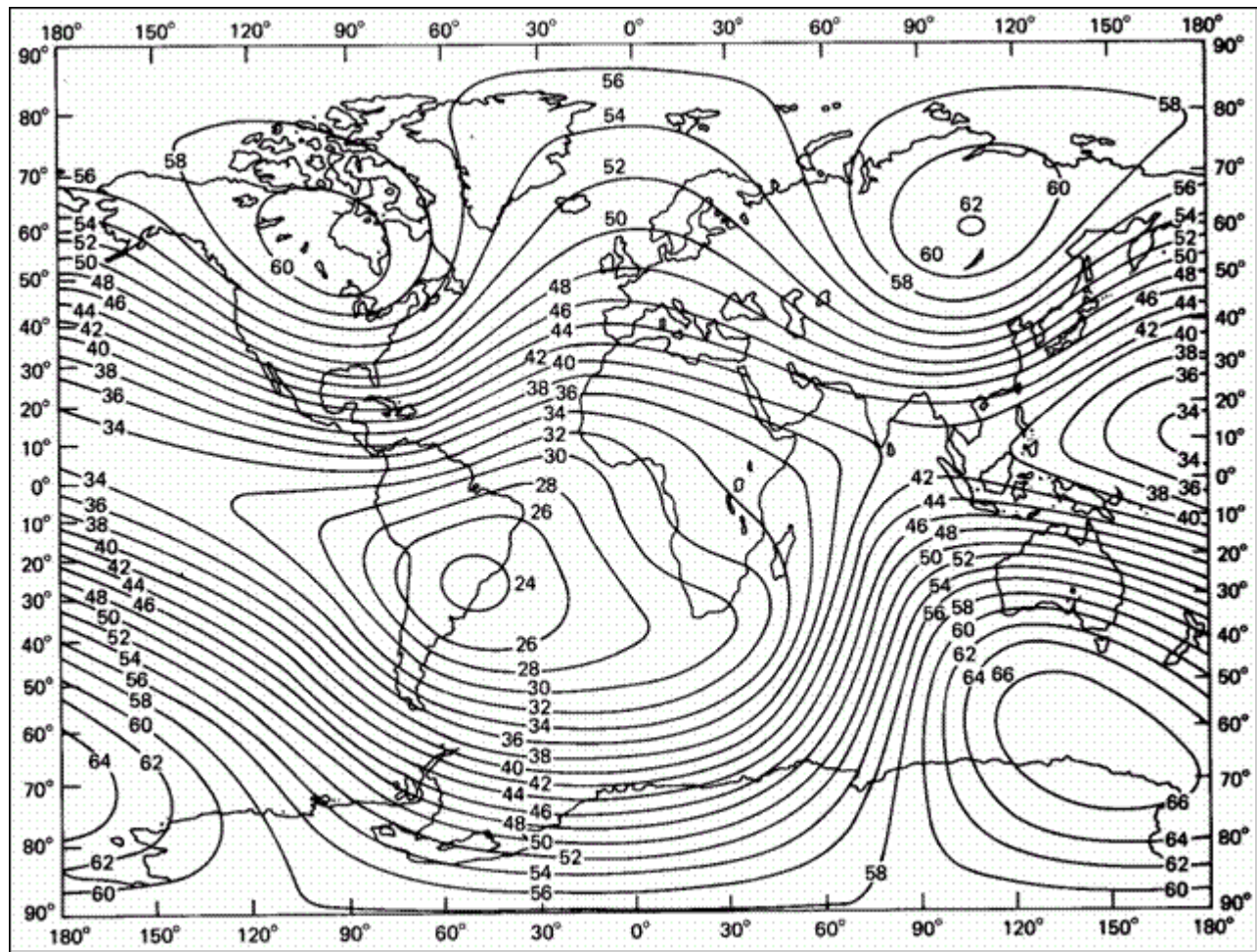


Figure 24: Present day magnetic field of the Earth (Magnitude, microT)

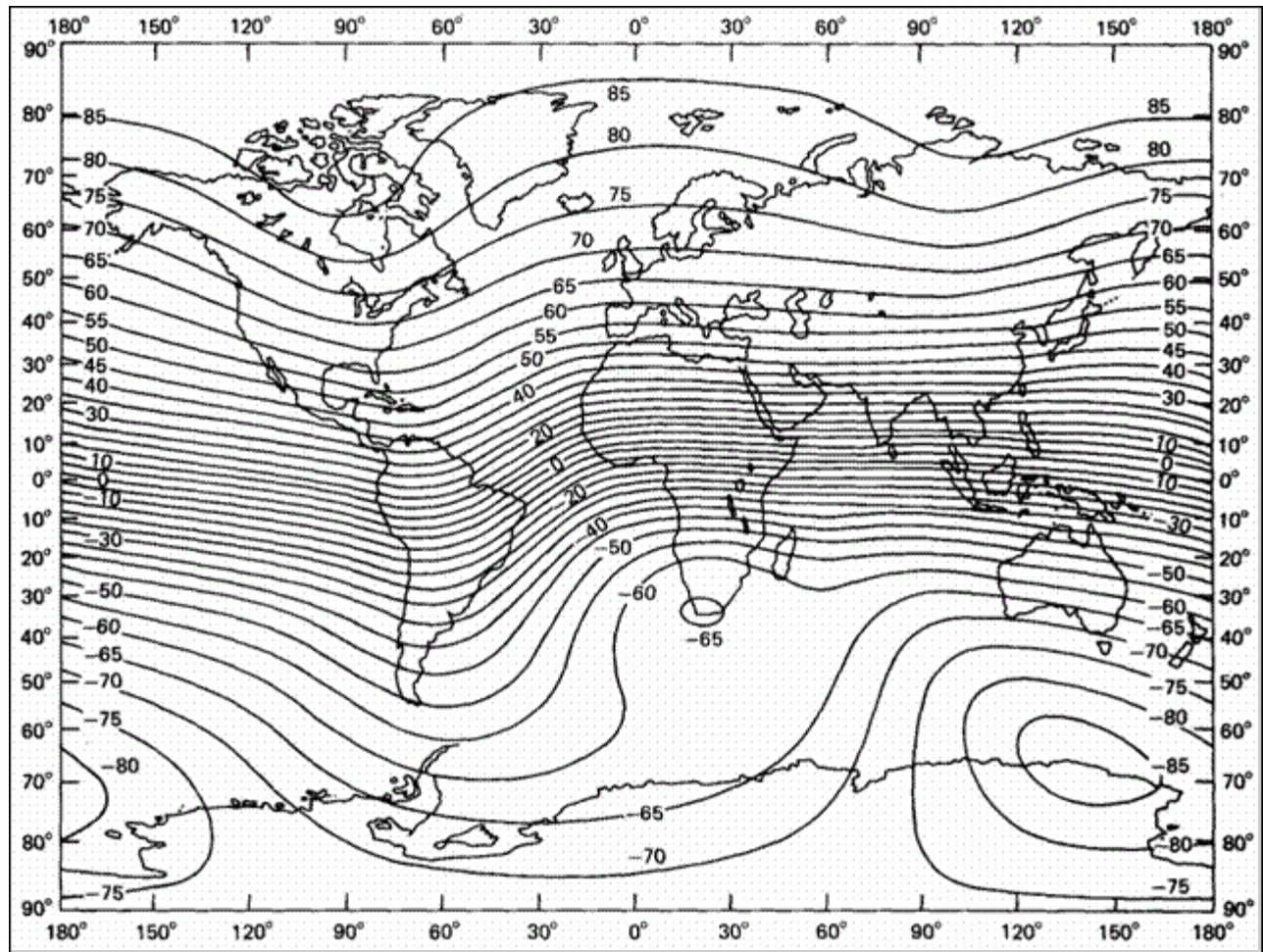


Figure 25: Present day magnetic field of the Earth (Inclination, deg)

Solar system organism and consciousness unit

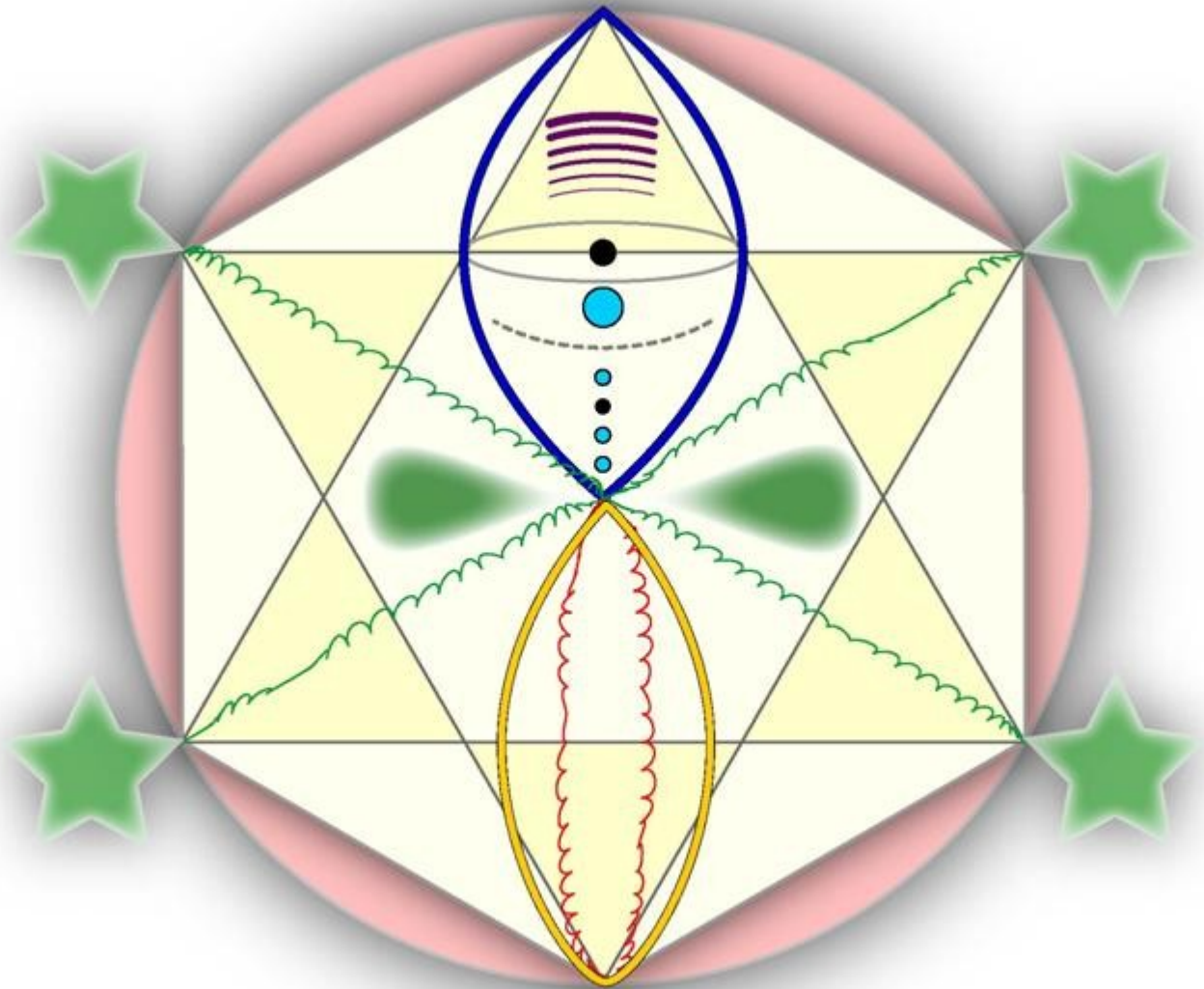


Figure 26: Esoteric aspects of the Solar System soul function

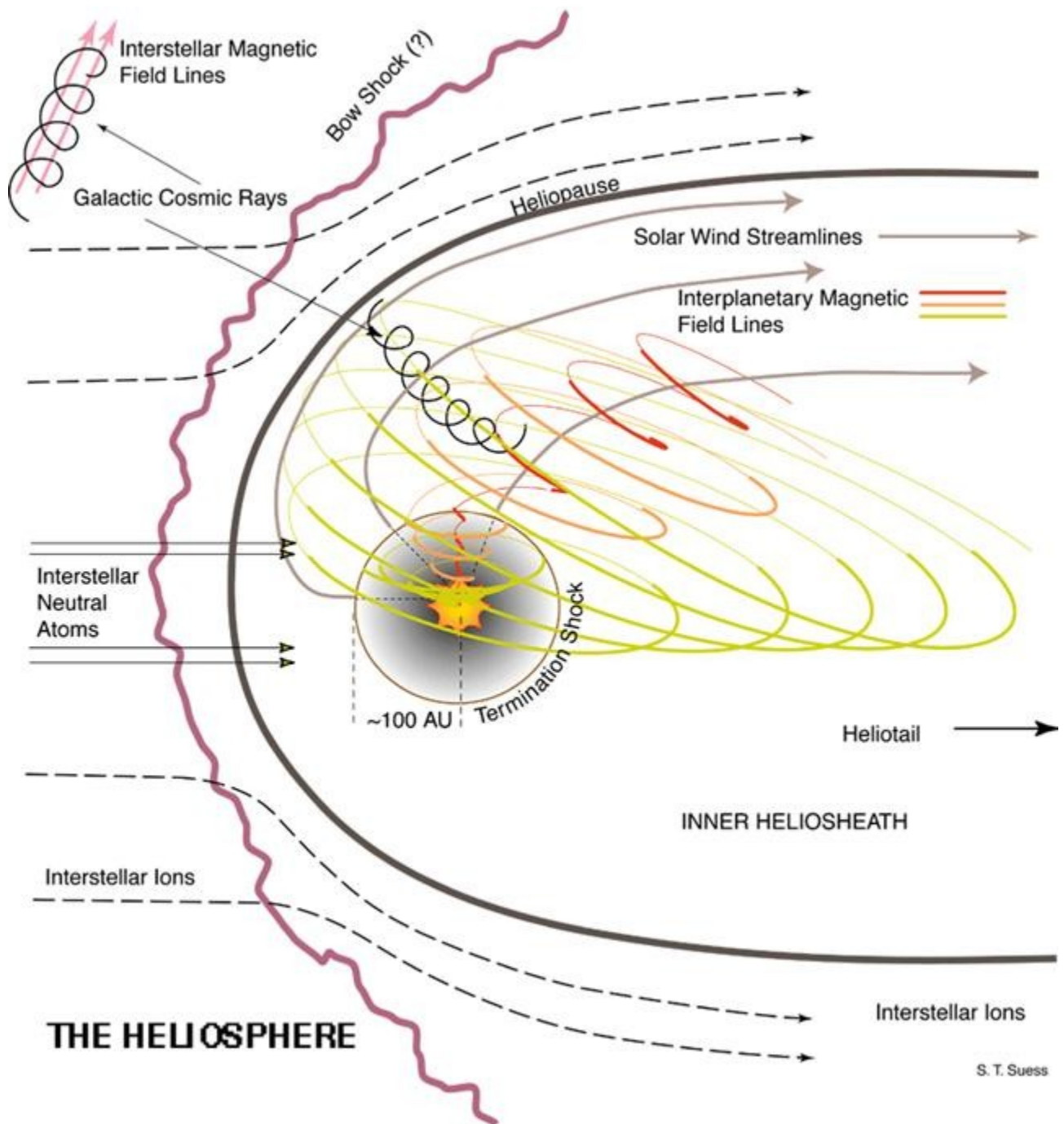


Figure 27: Physical aspects of Solar System soul function

The Solar logos materialization

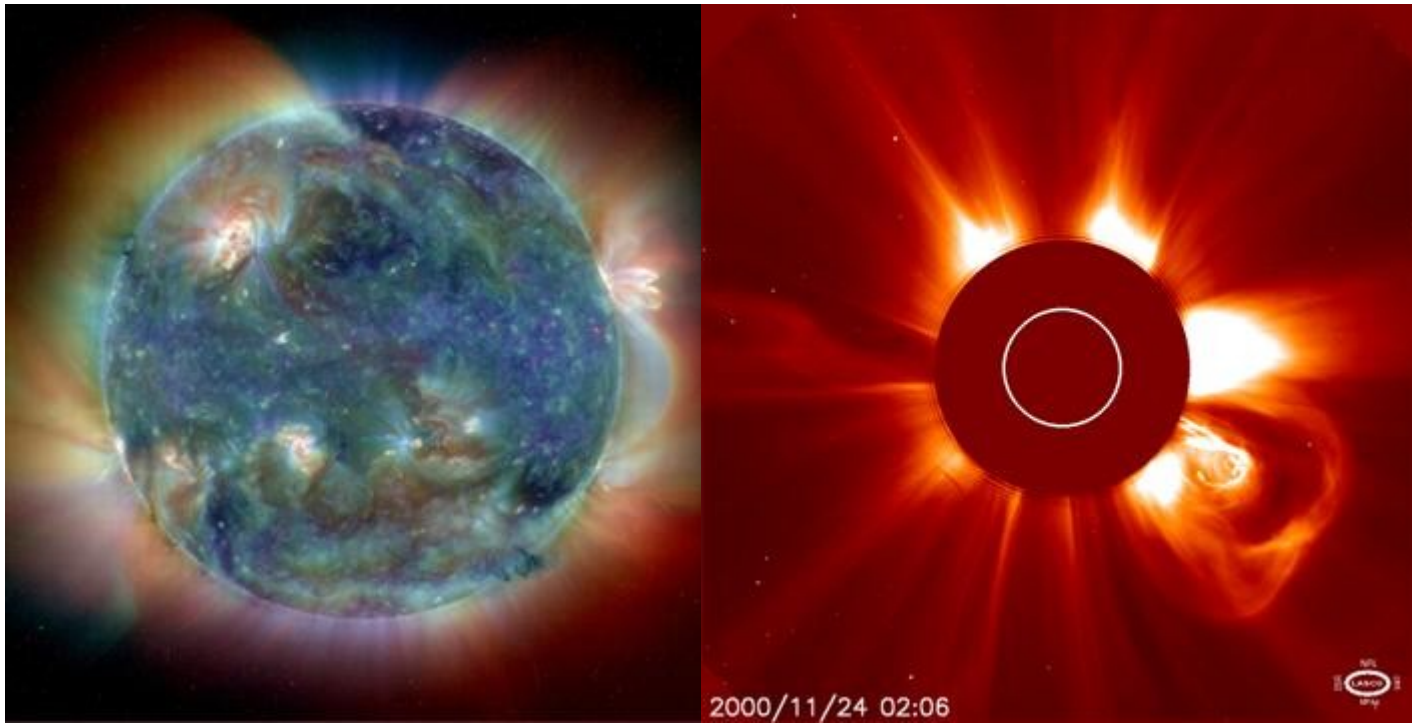


Figure 28: The Sun and a typical Coronal Mass Ejection
(Solar system etheric breath function)

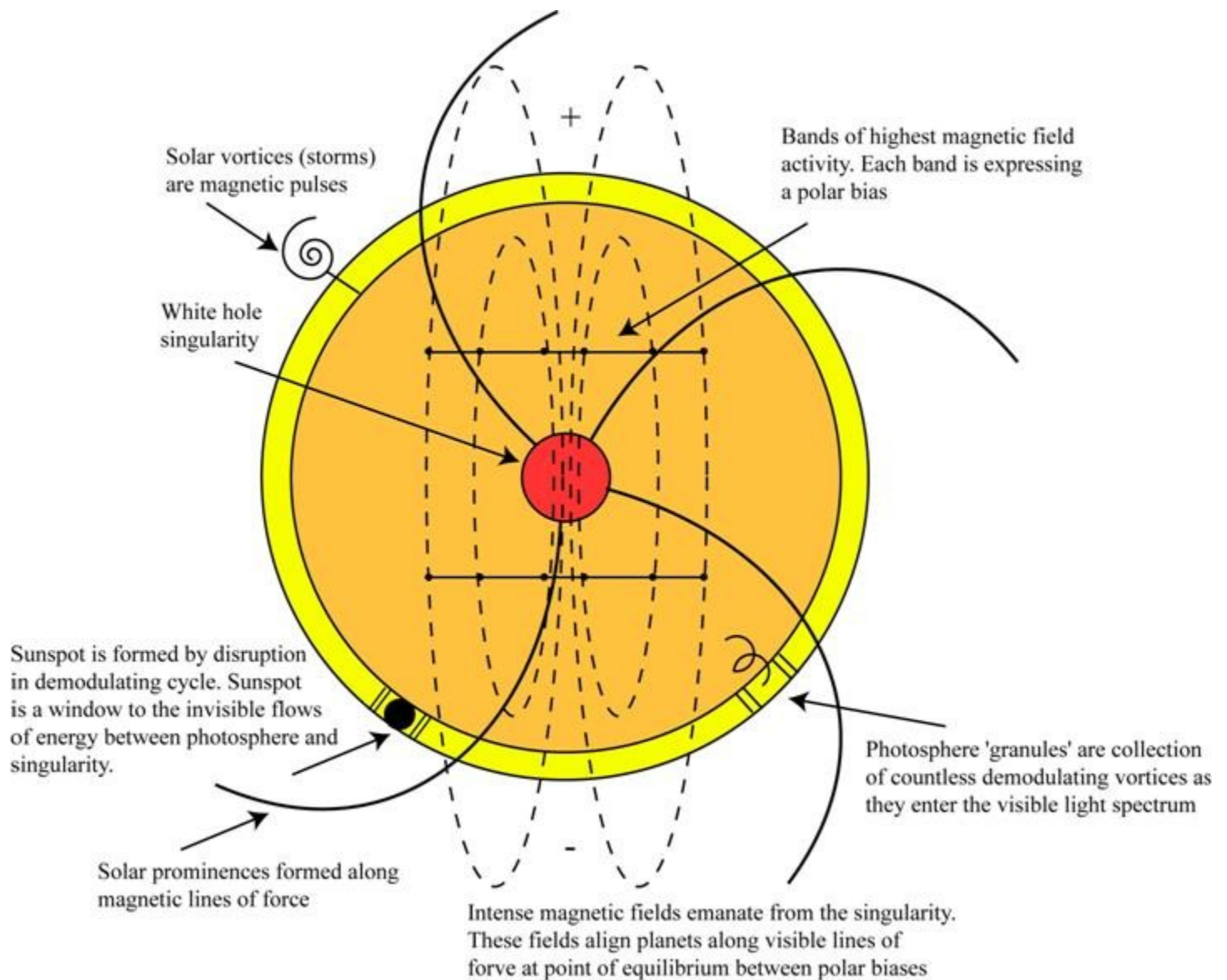


Figure 29: Star structure

Energy of faster than light frequencies is forming time space and its subset spectrum of transfinite energy. Isotopes of hydrogen and all other elements are formed during the initial burst of this energy into time space. Stars demodulate energy in a mathematical cycle and will lose their polarity relationship with time-space. When the polarity bias is reversed the star ceases to channel energy into time-space and acts to draw energy out of time-space into lower subsets or dimensions.

Esoteric equilibrium and solar system harmonics

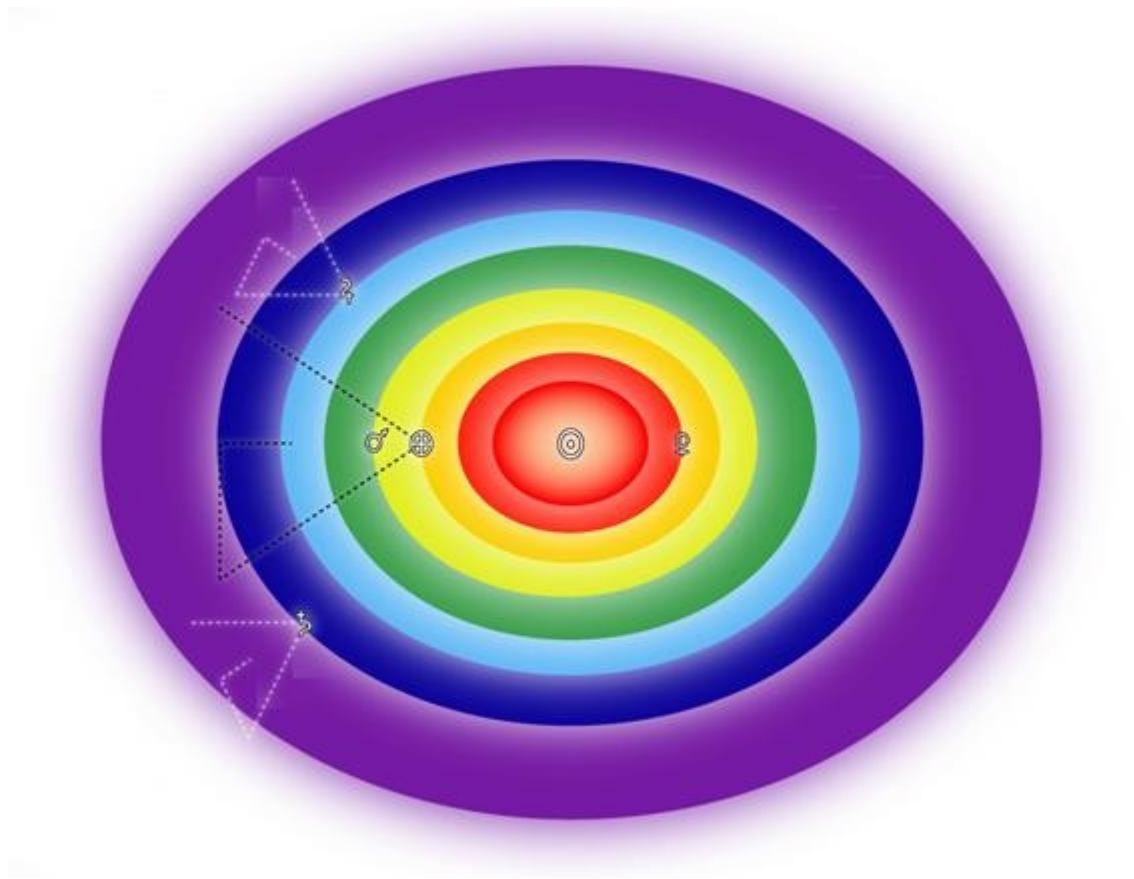


Figure 30: Esoteric equilibrium map of the Solar System

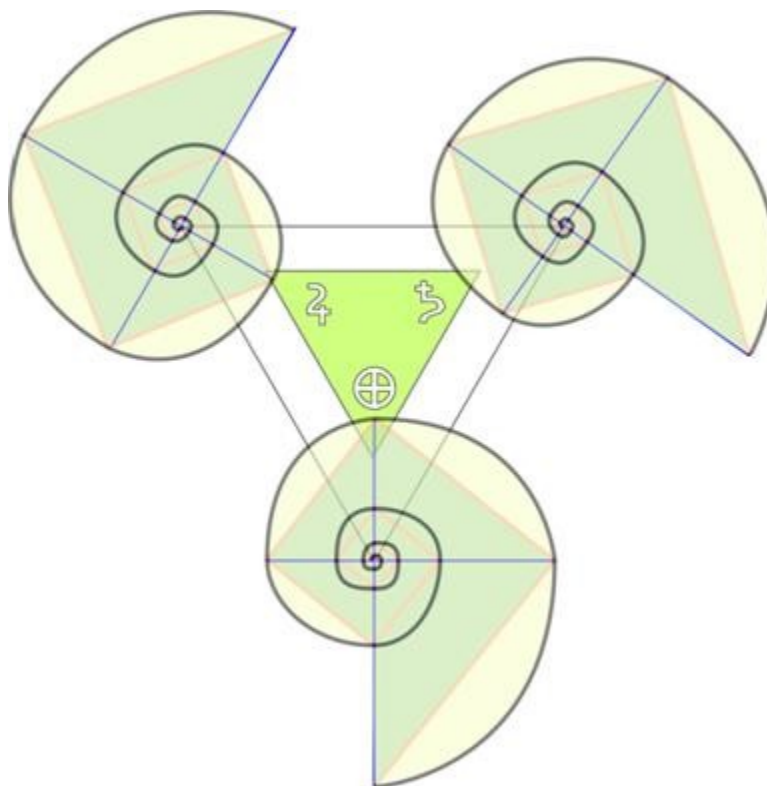
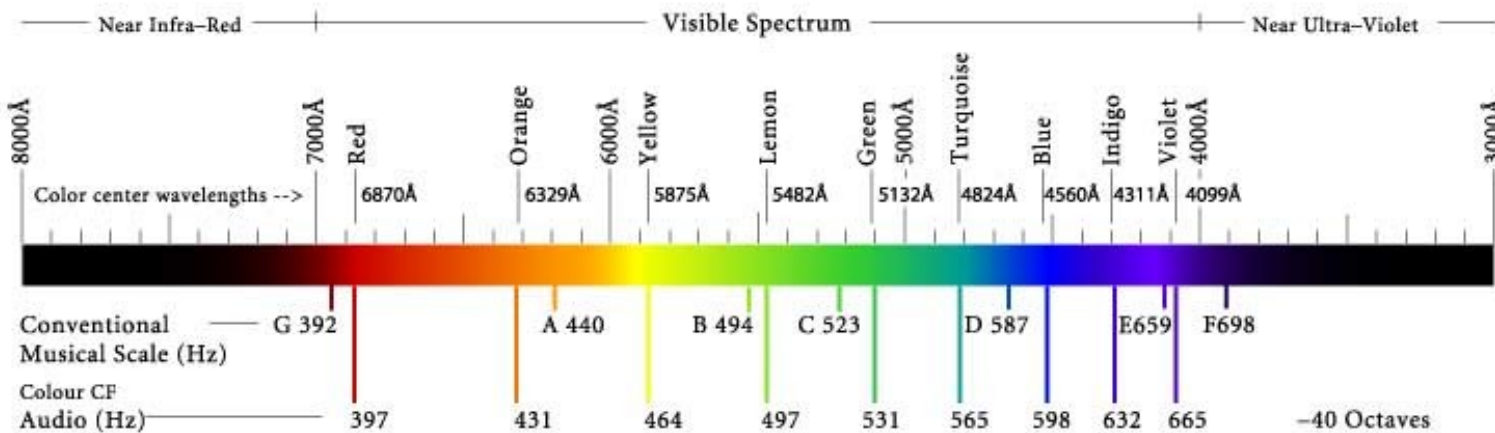


Figure 31: Threefold number 666

The Measurement of Light The Ångström

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The octave of visible light is forty octaves up from the middle audio octave and 46 octaves up from the alpha brain wave octave (not shown). Light, however, is measured by its wavelength whereas sound is measured by its frequency. Frequency is a measure of how many waves occur in a given amount of time. A common unit of measure for frequency is the Hertz. One Hertz = one cycle per second. A frequency of 60 Hertz means that 60 cycles (waves) occur in one second.

If we were to raise middle C, which has a frequency of 523 Hertz, by forty octaves we would have a very high frequency of $5.75044581 \times 10^{14}$ Hertz (that is 575 trillion, 581 million Hertz). Because of these unwieldy numbers, light is measured by the length of a wave. A higher frequency means there are more waves occurring in a given amount of time, thus waves become shorter as the frequency becomes higher.

Waves of light are quite short. For example, the center frequency for the color green has a wavelength that is 0.0000005132 meters long (0.5132×10^{-6} meters). To make this easy, we measure visible light in a unit called the Ångström (Å). One Å = $.0001 \times 10^{-6}$ meters. $1000 \text{ Å} = 0.1 \times 10^{-6}$ meters. The colors of visible light are typically measured in the thousands of Ångströms.

$$\begin{aligned}
 1 \text{ nm (nanometer)} &= 10^{-9} \text{ m} = 10^{-3} \mu\text{m} \\
 1 \mu\text{m (micrometer or micron)} &= 10^{-6} \text{ m} = 1000 \text{ nm} \\
 1 \text{ Å} &= 10^{-10} \text{ m} = 10^{-1} \text{ nm} \\
 1000 \text{ Å} &= 10^{-7} \text{ m} = 0.1 \mu\text{m} \\
 10,000 \text{ Å} &= 10^{-6} \text{ m} = 1 \mu\text{m}
 \end{aligned}$$

The visible spectrum of light runs from about 7000 Å (deep red) to about 4000 Å (deep violet).

Color	Center Frequency	Wavelength (Å)
Red		6870
Orange		6329
Yellow		5875
Lemon		5482
Green		5132
Turquoise		4824
Blue		4560
Indigo		4311
Violet		4099

To convert from frequency to wavelength:

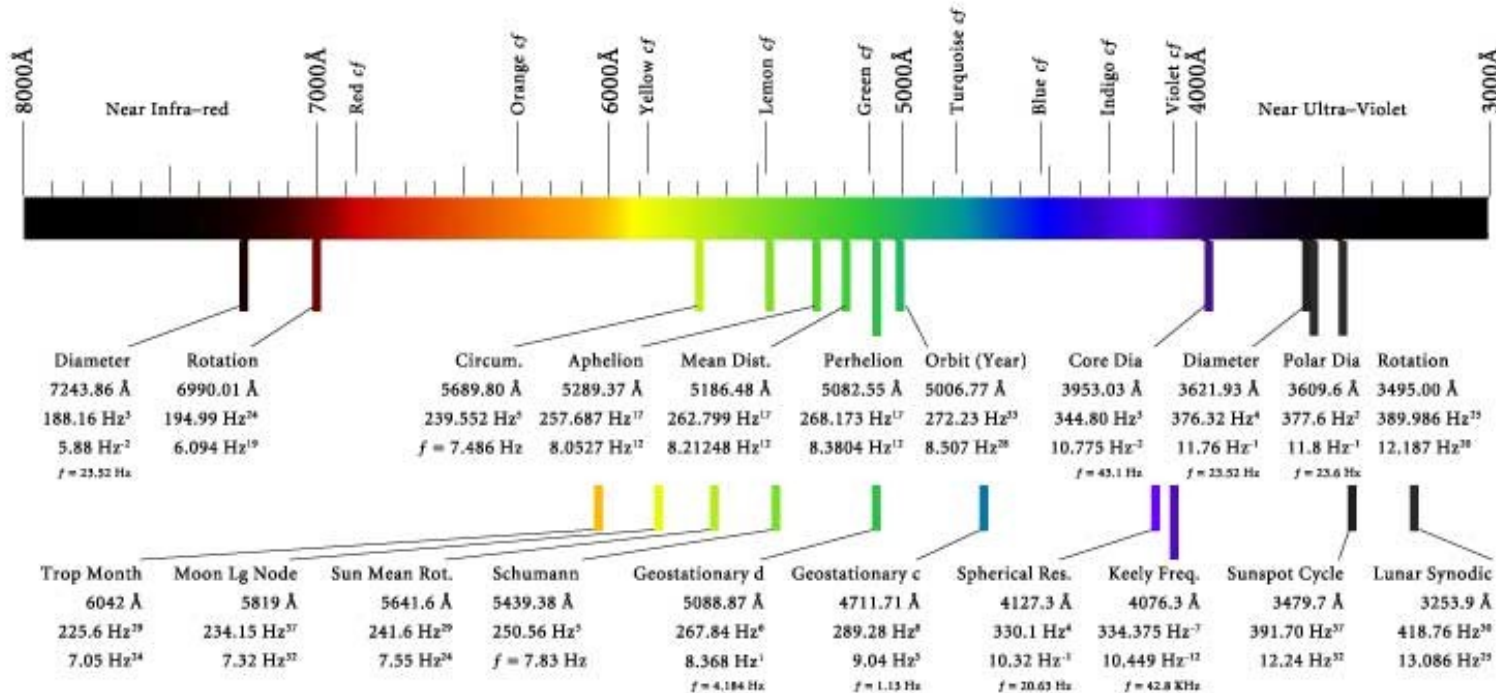
$$\begin{aligned}
 \lambda &= \frac{c}{f} \\
 \lambda &= \text{wavelength} \\
 f &= \text{frequency} \\
 c &= \text{speed of light at Earth's surface} \\
 &\quad (299,727,738 \text{ meters / sec})
 \end{aligned}$$

Figure 32: The measurement of light - the Ångström

Planetary Harmonic Spectrum

Earth

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Rev: 2.0.0
Initial Calculations:
E.E. Richards



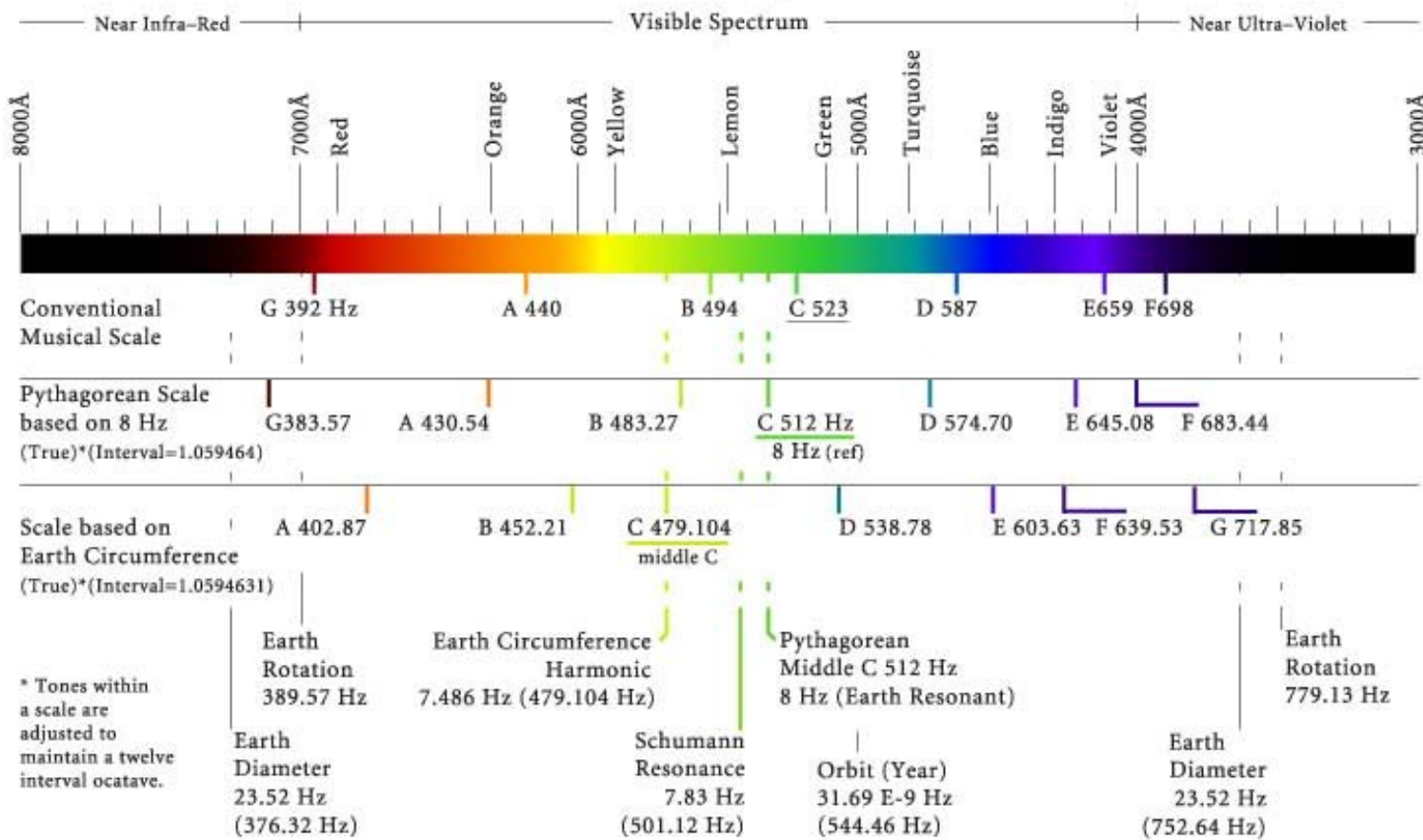
Parameter	Fundamental f	Light Harmonics	Legend
Circumference	07.486 Hz	5.68980409 E-7 meters / sec	Parameter
Diameter	23.52 Hz	3.62192801 E-7 meters / sec	Colour in Angstroms
Core Radius	86.20 Hz	3.95302769 E-7 meters / sec	Audio Frequency
Rotation	11.61 E-6 Hz	3.49939061 E-7 meters / sec	Brain Wave ELF
Orbit	31.69 E-9 Hz	5.00676964 E-7 meters / sec	(Octave Shift from fundamental - Hz ²⁸⁰¹)
Mean Distance	2005.00 E-6 Hz	5.18648123 E-7 meters / sec	

The fundamental frequency is shown if it is in the ELF to audio range as $f =$

Distance Harmonics are based on the speed of light at Earth's surface.

Figure 33: Planetary harmonic spectrum

Musical Scales & Earth Resonance True Color Correspondences



Audio Frequencies are 40 octaves down from the Visible Light Spectrum.

Alpha Wave frequencies of the brain (ELF) are 46 octaves down from the Visible Spectrum.

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Figure 34: Musical scales & Earth resonance

Planetary Parameter Comparisons

Rotation - Period - Circumference - Diameter

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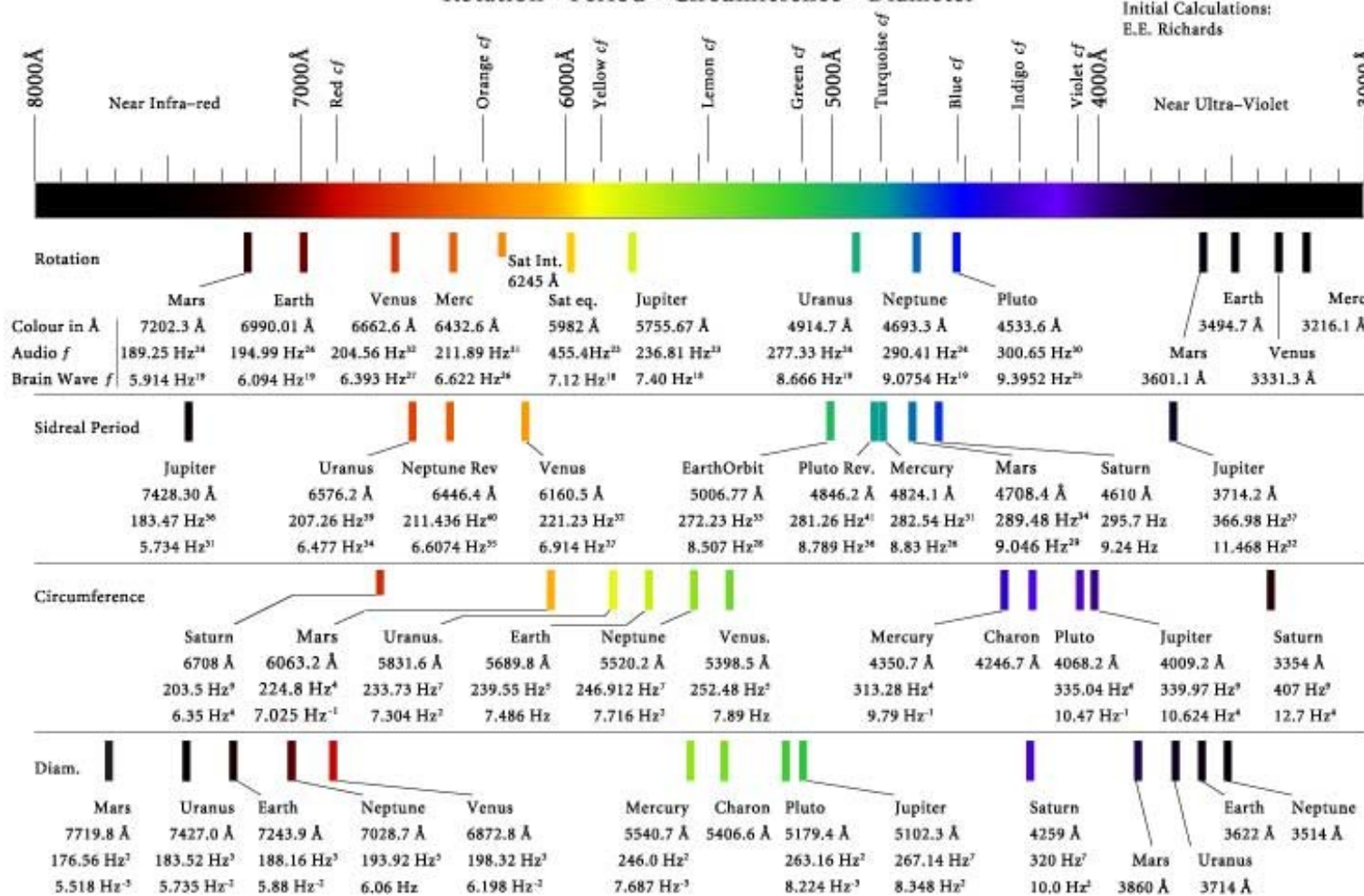


Figure 35: Planetary parameter comparisons

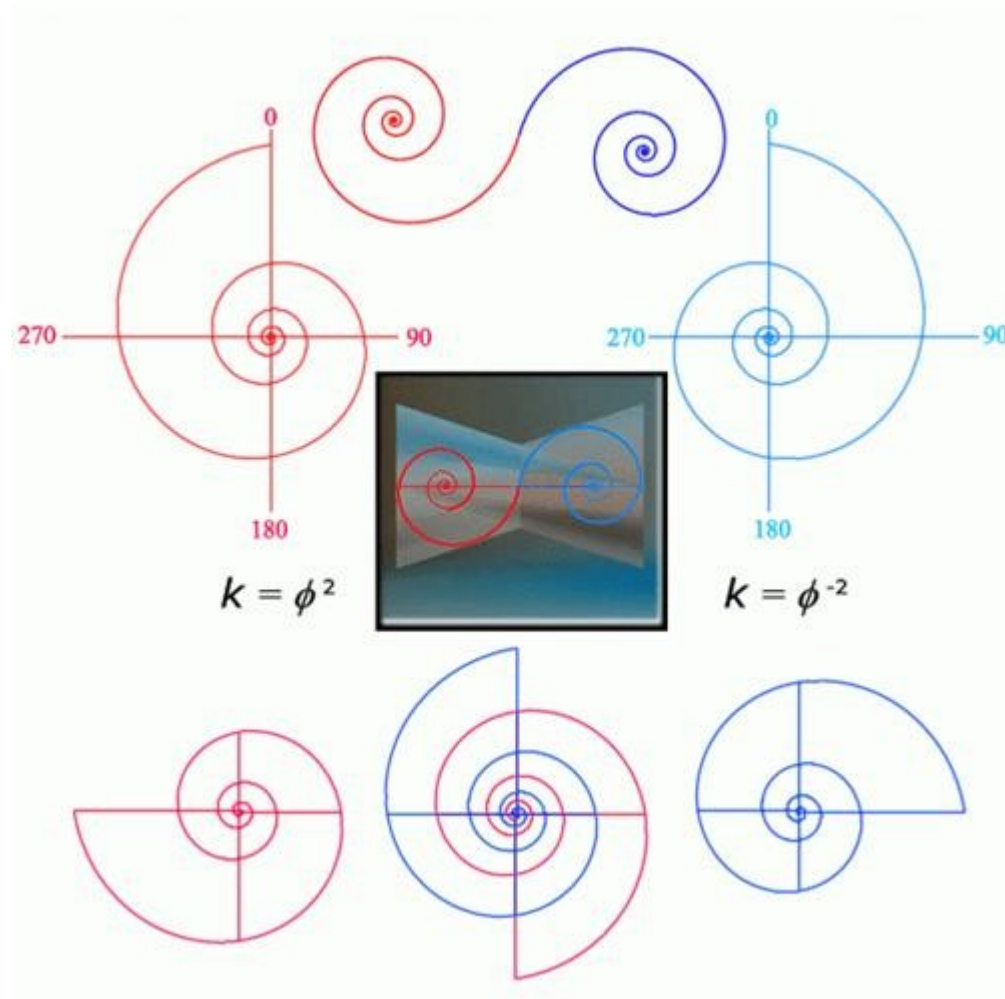
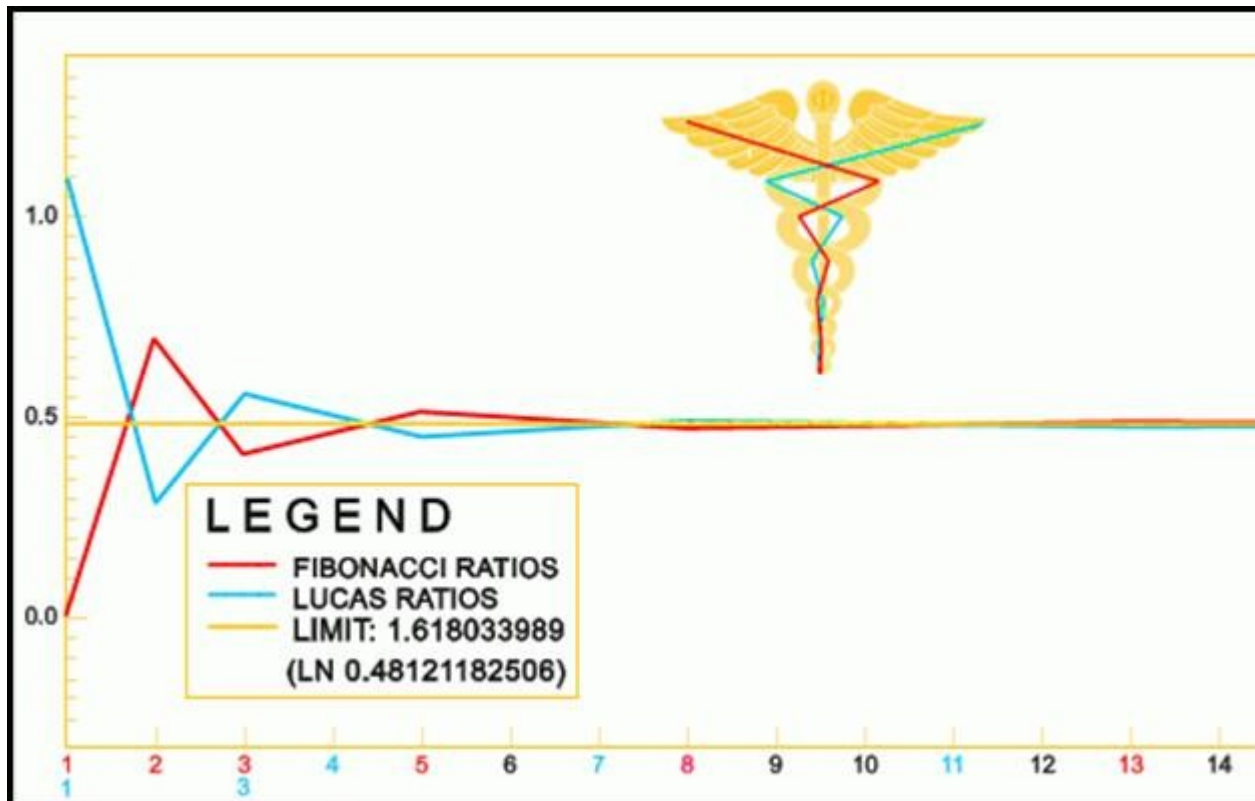


Figure 36: Dimension flip compression/decompression

Planet	Distance (R) A.U.	Periods (T) YEARS	Velocity Vr (R/T)	Velocity Va (kR/T)	Velocity (Modern)
MERCURY	0.387107	0.24085	1.60725	47.88	47.89
VENUS	0.723350	0.61521	1.17577	35.03	35.03
EARTH	1	1	1	29.79	29.79
MARS	1.523733	1.88089	0.81011	24.13	24.13
JUPITER	5.201287	11.86223	0.43847	13.06	13.06
SATURN	9.538188	29.45770	0.32379	9.65	9.64
URANUS	19.182303	84.01390	0.22832	6.80	6.81
NEPTUNE	30.057937	164.79300	0.18240	5.43	5.43
PLUTO	39.440188	247.69000	0.15923	4.74	4.74

Table 1: Mean Planetary Distances, Mean Periods and Mean Velocities



PLANETARY RESONANCES

[Lothar Komp, 21st Century, 1996:39, Figure 9]

1. The system of inner planets

$S_{\text{MERCURY}} \text{ --}2:1\text{--} O_{\text{MERCURY}} \text{ --}3:2\text{--} R_{\text{MERCURY}} \text{ --}2:1\text{--} S_{\text{VENUS}} \text{ --}5:1\text{--} S_{\text{VENUS, EARTH}}$

$8:5$

$R_{\text{VENUS}} \text{ --}3:2\text{--} O_{\text{EARTH}} \text{ --}13:8\text{--} O_{\text{VENUS}} \text{ --}3:1\text{--} O_{\text{MARS}}$

2. The Jupiter-Saturn system

$O_{\text{JUPITER}} \text{ --}5:3\text{--} S_{\text{JUPITER, SATURN}} \text{ --}13:8\text{--} O_{\text{SATURN}}$

3. The system of the outer planets

$O_{\text{URANUS}} \text{ --}2:1\text{--} O_{\text{NEPTUNE}} \text{ --}3:2\text{--} O_{\text{PLUTO}} \text{ } 2:1\text{--} S_{\text{NEPTUNE, PLUTO}}$

"The relationships shown here are between synodic periods (S), orbital periods (O), and axial rotation periods (R). The synodic period is with respect to the Sun unless otherwise indicated.

All relationships are formed from members of the Fibonacci series:

1, 1, 2, 3, 5, 8, 13, 21, . . .

The sum of each adjacent pair defines the succeeding member.
the ratios of neighbouring members draw closer and closer to
the Golden Section, as the series proceeds."

Figure 37: Planetary resonances

Fibonacci Series: 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, ...

Lucas Series: 1, 3, 4, 7, 11, 18, 29, 47, 76, 123, 199, 322, 521, 843, 1,364

1. HARMONIC PERIODS OF JUPITER, SATURN, and JUPITER-SATURN Synodics

2. AUGMENTED by LUCAS HARMONICS of the JUPITER-URANUS Synodic Cycle

Fibonacci Triples: [5:3:2] [8:5:3] [13:8:5] [21:13:8] [34:21:13] [55:34:21] [89:55:34]

Lucas Factors: 4 7 11 18 29 47 76

Intervals (years): 59 94 153 248 401 650 1050

Figure 38: Harmonic periods, Fibonacci/Lucas series

POSITION Planet/Synodic	Phi N	PERIOD "SOUL"	DISTANCE "BODY"	VELOCITY "SPIRIT"
MERCURY	- 3	0.23606797	0.38196601	1.618033988
Synodic/(Oil)	- 2	0.38196601	0.52644113	1.378240772
VENUS/Copper	- 1	0.61803398	0.72556263	1.173984996
Synodic/Earth	0	1	1	1
MARS/Iron	1	1.61803398	1.37824077	0.851799642
JUPITER/Tin	5	11.0901699	4.97308025	0.448422366
Syn./Antimony	6	17.9442719	6.85410196	0.381966011
SATURN/Lead	7	29.0344418	9.44660278	0.325358511

Table 2: The Phi-Series Planetary Framework, Mercury through Mars, and Jupiter to Saturn. Unity provides the frame of reference, "Gold" = Phi = 1.6180339887499

Pierce, Agassiz, Fibonacci, and the Solar system

It may well be that the extension of the "Three-fold Number" beyond terrestrial boundaries is simply the logical continuation of Ovid's initial observation that *"The three-fold number is present in all things whatsoever"* --an observation that in view of the nature of spiral galaxies need not remain with planetary systems *per se*. Nevertheless, the linking of natural growth to the structure of planetary systems was undoubtedly a bold and momentous step even though it also reflects the second part of the quotation from Ovid: *"Nor did we ourselves discover this number, but rather nature teaches it to us."* At least this seems applicable in the case of Benjamin Peirce, who integrated both to successfully apply the Fibonacci series to the structure of the Solar System. The latter's work was originally published in the *Proceedings* of the AAAS in 1850 and given additional permanence with a further airing in Louis Agassiz's *Essay on Classification* in 1857. All to little or no avail, it would seem, for in spite of the details and the implications the work it still remains in relative obscurity to the present day. In some respects this may be understandable, though the subsequent lack of attention or acceptance can hardly be blamed on the quality of the work or the means of presentation. All too easily dismissed as "speculative biology" (Lurie 1962:128) it would seem, it is likely that it was also one of the first victims of "Bode's "Law" which first surfaced less than a decade later (1866-1871) despite its fatal mathematical flaws and *ad hoc* origins. Indeed, if longevity and popularity alone provide the guidelines, then "Bode's Law" would win hands-down in any comparison between the two planetary frameworks. If, however, the standard by which such matters are judged depends not on popularity or elementary mathematics, but on human progress and increased understanding, then one can only wonder what else might have been accomplished since Agassiz's time and sadly lament the loss.

The complete description of Benjamin Pierce's application of the Fibonacci series to the structure of the Solar System as published by Louis Agassiz is provided below; perhaps significantly, the words "Fibonacci" and/or the "Golden Section" (and the like) are noticeably absent--such words perhaps already unacceptable to the powers that be and also a perceived threat to the *status quo*. Nevertheless, there can be no

mistaking the sequence applied or the major premise, called here perhaps fittingly enough (for the moderns, at least) "the law of phyllotaxis". One may also note that Peirce had already considered the practical differences between his theoretical treatment and the Solar System itself and subsequently considered not only the position of Earth, but also discrepancies encountered for the positions of Mars, Uranus and Neptune. Initially Pierce also applied a double form of Fibonacci series but subsequently reduced the set to arrive at a situation similar to that involving the synodic difference cycle between adjacent planets.

Neptune,	1/1	62,000	60,129
"	1/1	62,000	
Uranus,	1/2	31,000	30,687
"	1/2	15,500	
Saturn,	2/3	10,333	10,759
"	2/3	6,889	
Jupiter,	3/5	4,133	4,333
"	3/5	2,480	
Asteriods,	5/8	1,550	1,200
"	5/8	968	
Mars,	8/13	596	687
Earth,	8/13	366	365
Venus,	13/21	227	225
"	13/21	140	
Mercury,	21/34	87	88

Figure 39: (Agassiz-Pierce 1857)

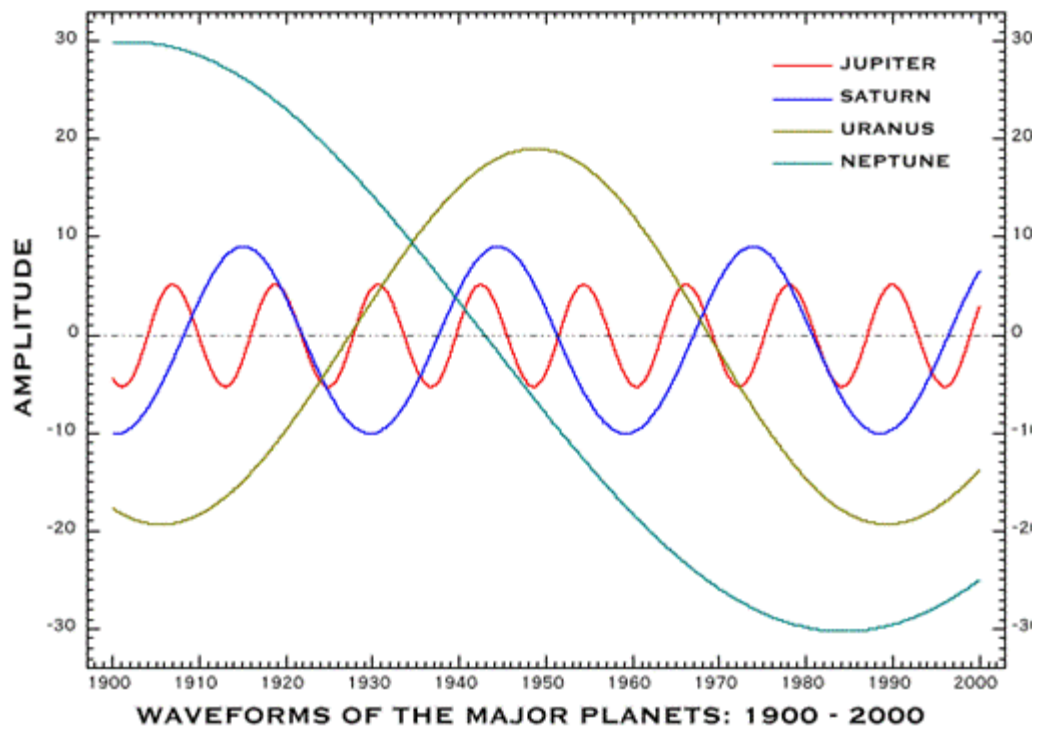


Figure 40: Waveforms of the major planets (1900-2000)

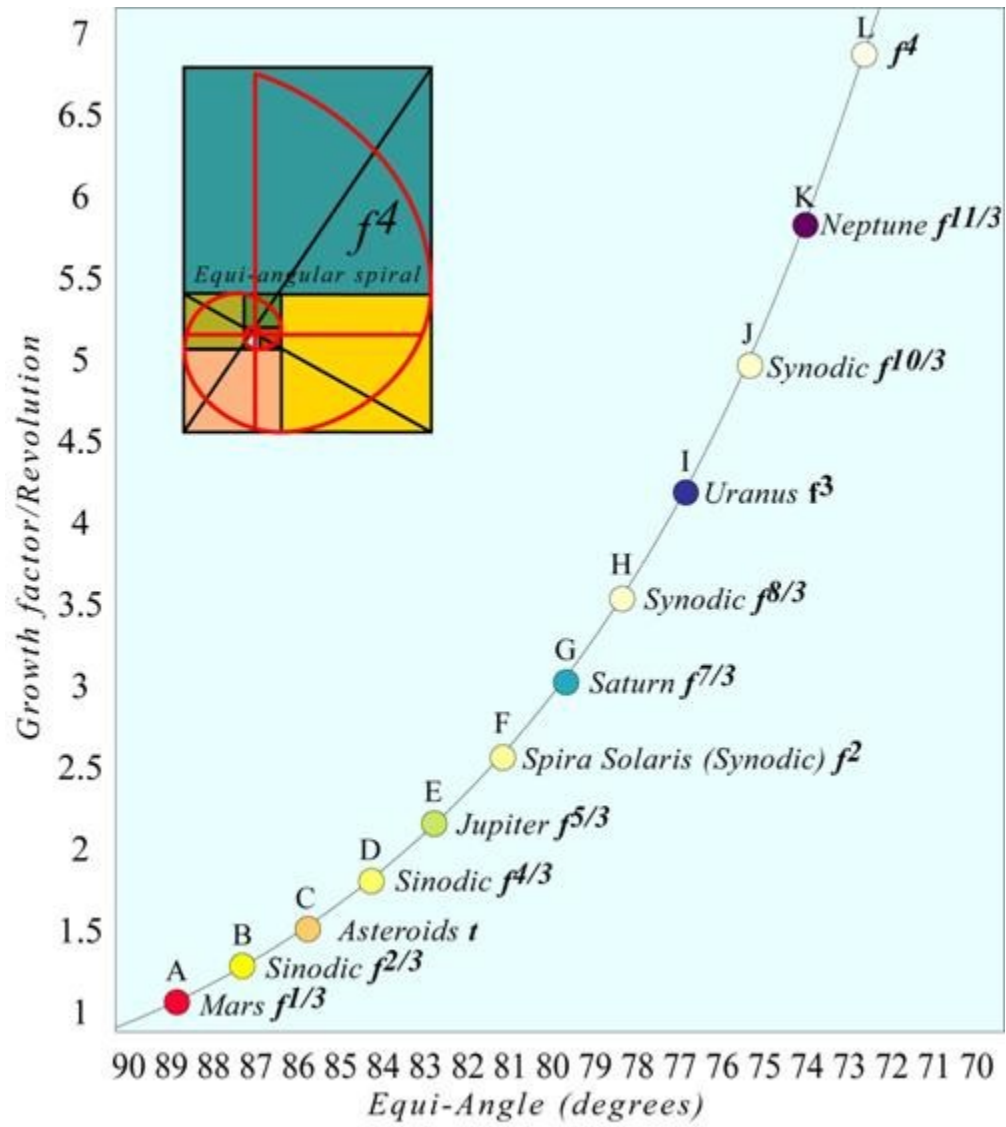


Figure 41: The Pheidian planorbidae - thirds

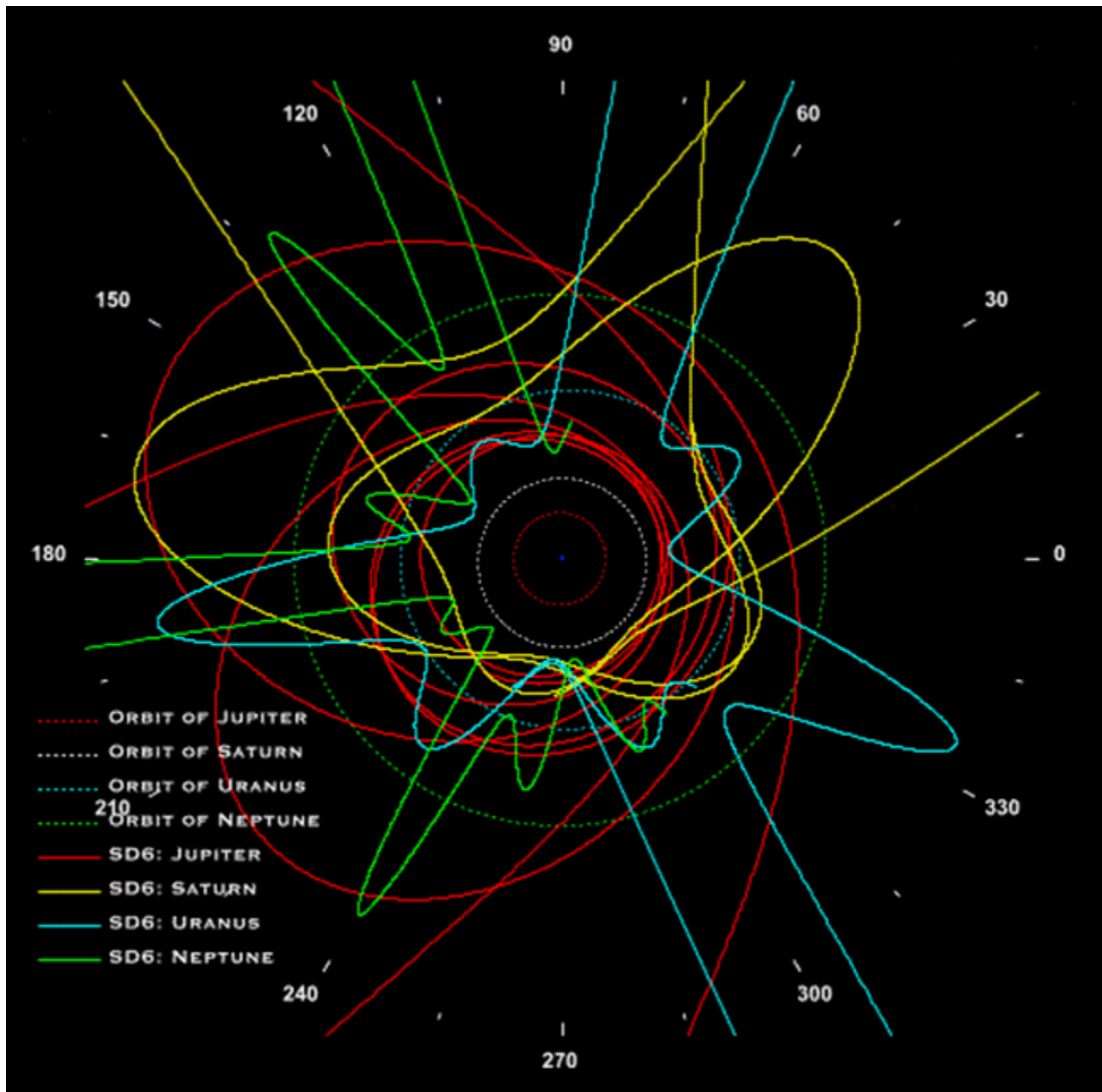


Figure 42: Synodic period 6 and the four superior planets

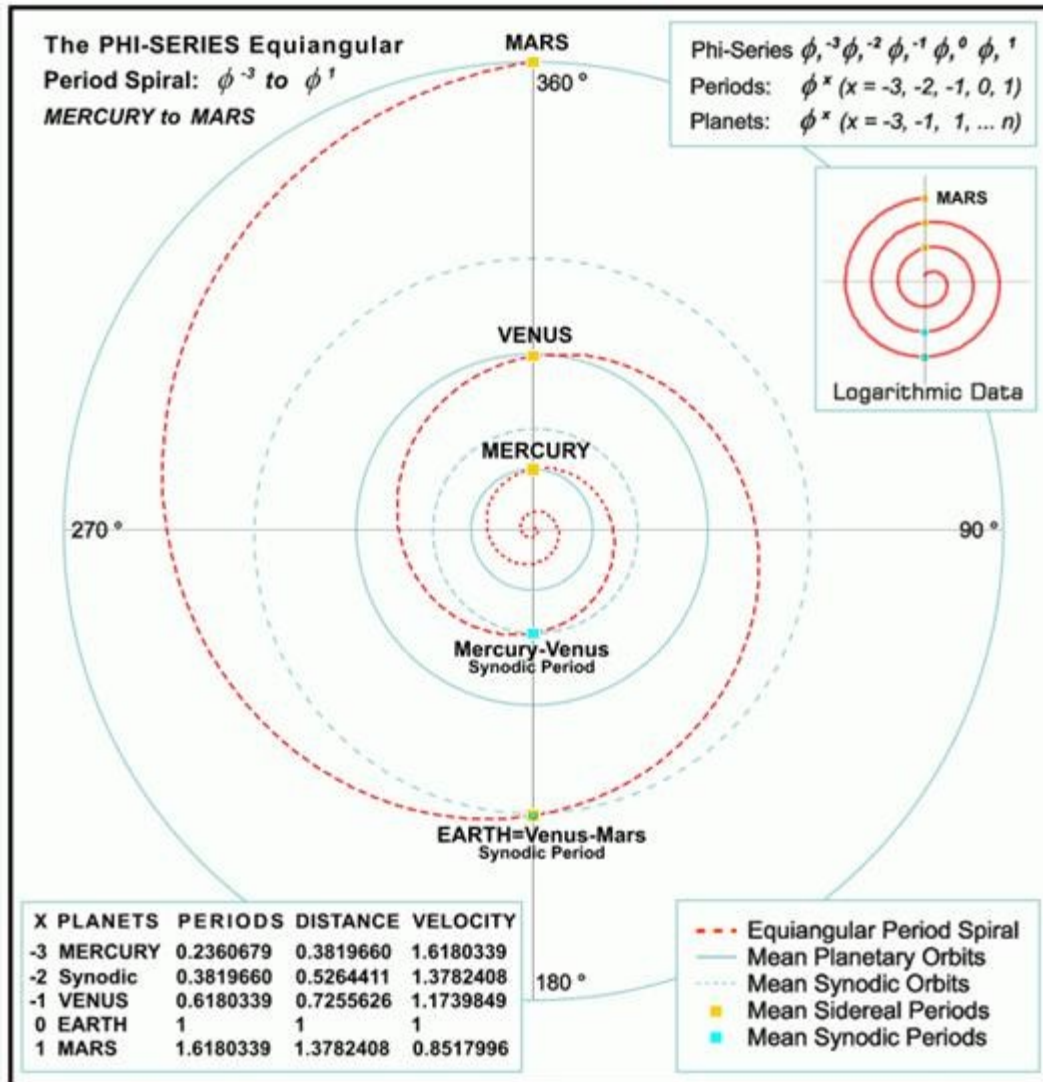


Figure 43: The phi-series equiangular (Mercury-Mars)

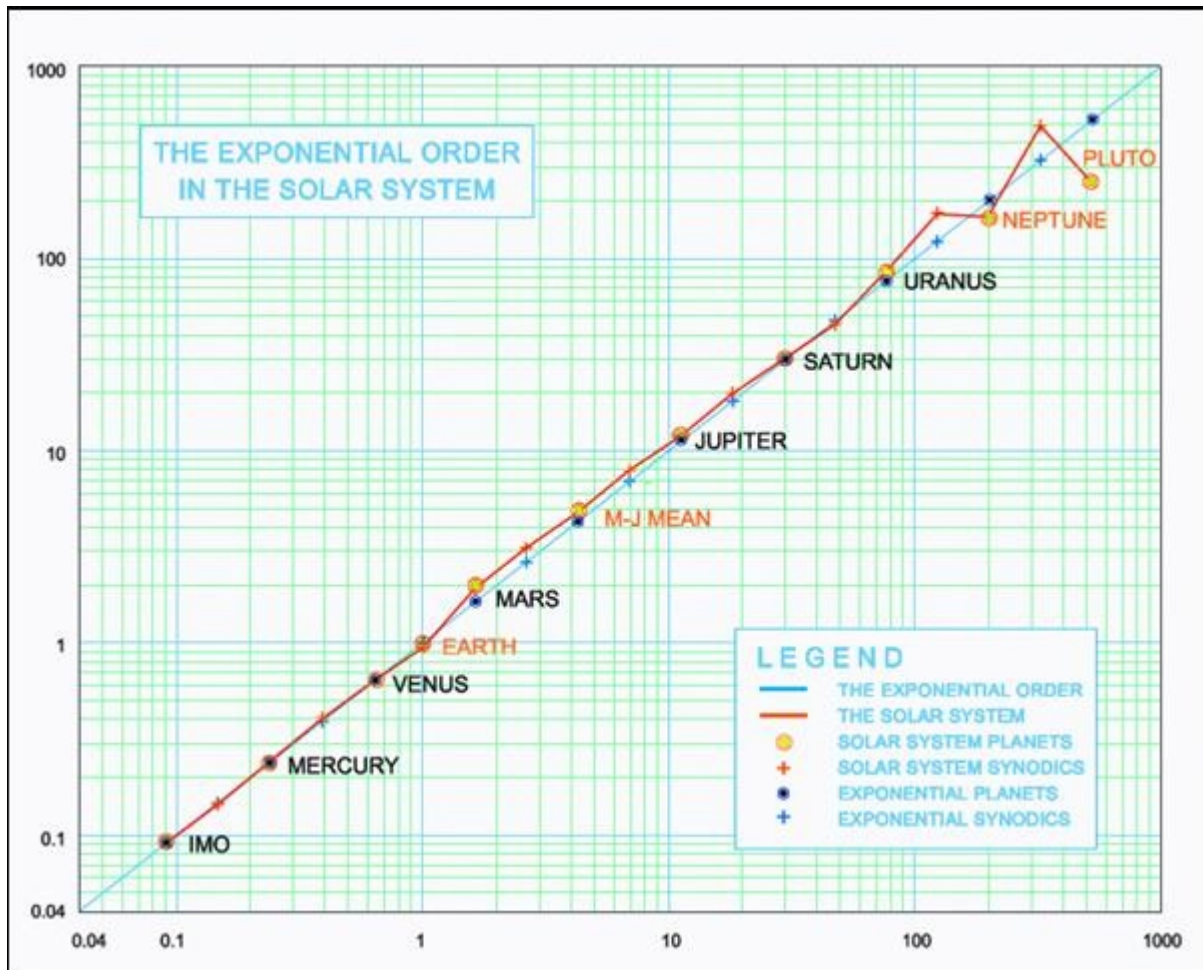


Figure 44: Exponential order in the Solar system

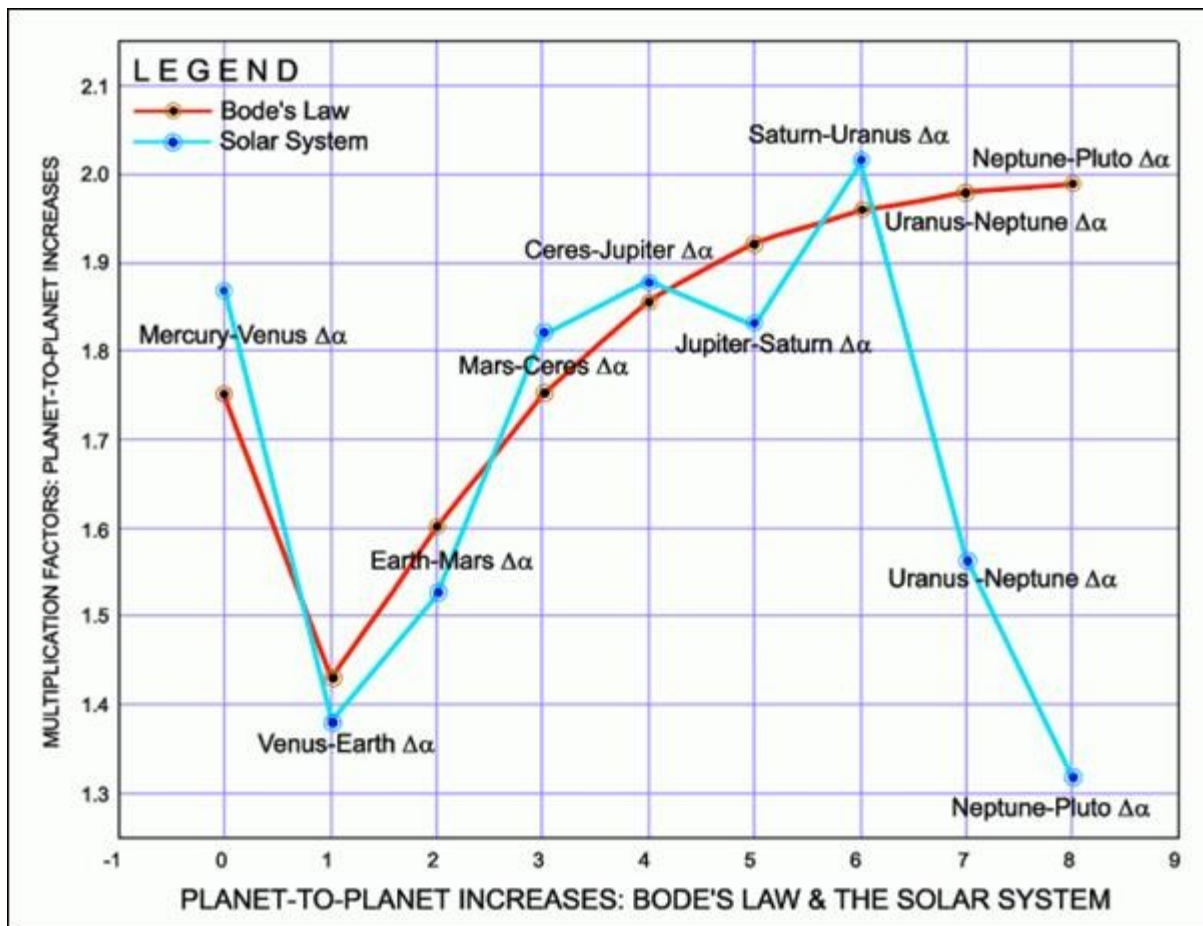


Figure 45: Bode's law and the Solar system

Inverse velocity and angular momentum

At this point in the proceedings the reader should be aware that the inverse velocity in consort with the **Period-Distance-Velocity relationship** $T^2 = R^3 = Vr^{-6}$ provides substantially more than mere mathematical convenience. In fact the corresponding **Period-Distance-Inverse Velocity relationship** $T^2 = R^3 = Vi^{-6}$ allows **Vi** to play a major role in the computation of planetary angular momentum (**L**).

Most of the angular momentum of the solar system is in the planets, not in the Sun. This is because the massive Sun rotates very slowly, whereas the planets, less massive but far away, move rapidly enough in their orbits that their angular momentum is greater. This is particularly true for the gas giants. (Angular momentum is a quantity for rotating or revolving objects that is somewhat analogous to momentum for objects moving in a straight line. The angular momentum, **L**, of an orbiting object is given by the equation $L = mav$, where **m** is the mass of the object, **a** is its semi-major axis, and **v** is its average orbital velocity. For a rotating object, angular momentum is given by $L = Cmr2w$, where **C** is the object's moment of inertia coefficient, **m** is its mass, **r** is its radius, and **w** is its rotational velocity in radians per second. Table 29.1 lists the angular momentum of various solar system objects.) Other important characteristics of the solar system involve the physical properties of its various objects. The planets differ in composition, with the controlling factor being distance from the Sun. The inner, terrestrial planets are rocky and metallic, the outer gas giants are primarily hydrogen and helium, and outermost Pluto is icy. The planets and their satellites resemble miniature solar systems, and most satellites orbit regularly in the equatorial plane of their planet ... (Jeffrey K. wagner; Chap. 29. Constraints on Solar System Formation in *Introduction to the Solar System*, Holt, Rinehart & Winston, Orlando 1991:426)

Consequently angular momentum is essentially the product of the **mass**, the mean **distance** and the mean **velocity**. However, because of the relation Period-Distance-Velocity relationship: $T^2 = R^3 = Vi^{-6}$ the relation: $L = Mav$ may be expressed in the form **Mass x Vi² x Vr**, which reduces further to become simply: **Mass x Vi**:

Angular Momentum $L = mvi$

Angular momentum is often expressed in absolute terms, but for comparison and general purposes it may also be calculated with respect to **unity** with Earth providing the frame of reference for the mean periods, the mean distances, the mean velocities, and also the planetary masses (the mass of Jupiter being 317.88 times that of Earth, etc.). Furthermore, while still remaining with mean values it is also possible to compute the angular momentum for the Phi-Series exponential planetary framework directly. Thus we obtain the following comparison with modern estimates applied to modern data. The table follows Wagner in grouping together the angular momentum of the four terrestrial planets. Pluto is omitted here. Although

slight, the main differences are precisely those expected for the Phi-Series planetary framework as show in Figure 6c, i.e.,

Objects	L (Ang. M) (g cm ² /sec)	% of Total (Wagner)	% Total Phi-S MVi
SUN	1.6×10^{48}	0.5%	0.5%
4 Inner Planets	4.95×10^{47}	0.2%	0.15%
Jupiter	1.9×10^{50}	60.4%	60.54%
Saturn	7.8×10^{49}	24.8%	24.98%
Uranus	1.7×10^{49}	5.4%	5.25%
Neptune	2.6×10^{49}	8.3%	8.58%
4 Gas giant Total	3.14×10^{50}	98.9%	99.35%

Table 3: Percent Solar System L, The Phi-Series Exponential Framework

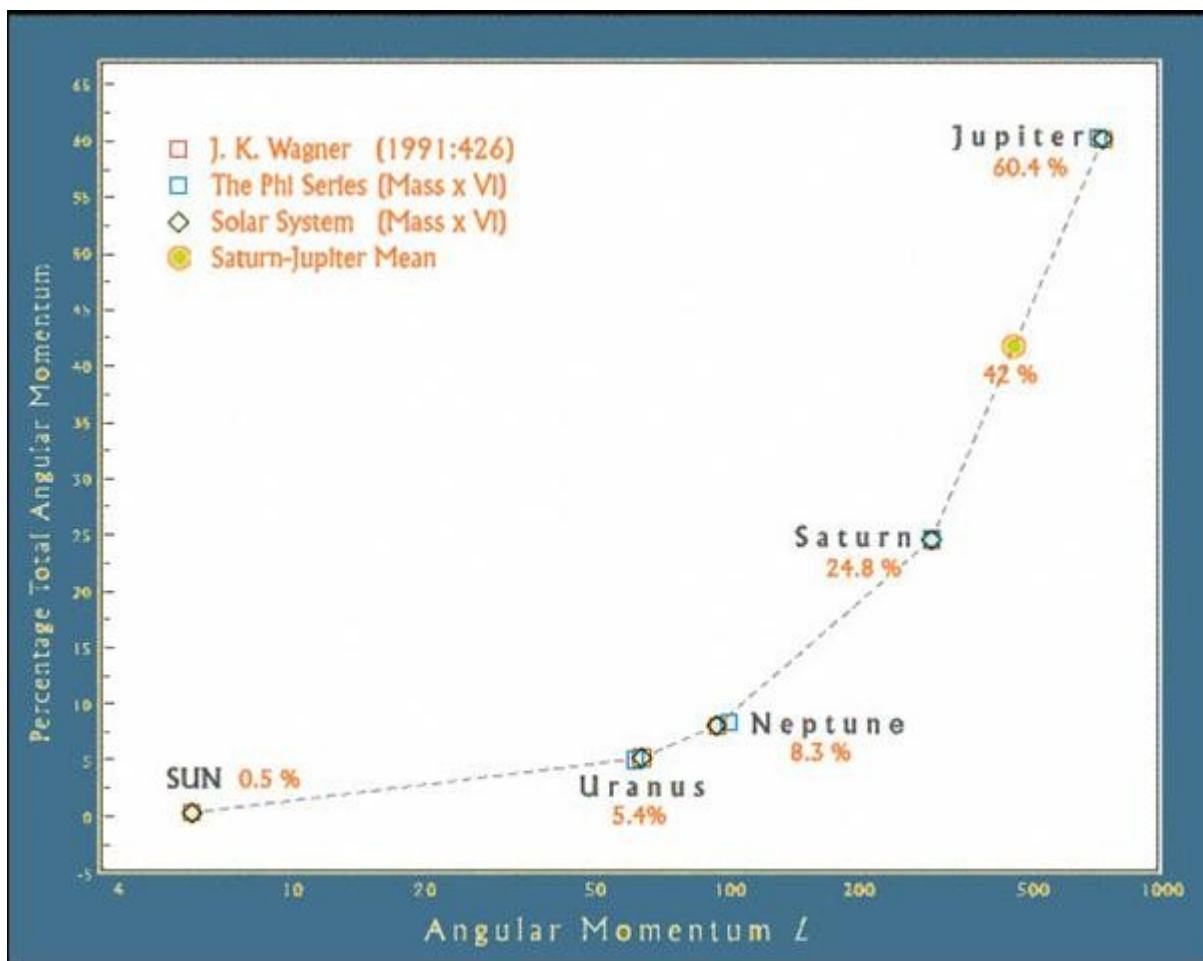


Figure 46: Four superior bodies angular momentum

Earth soul function and the magnetosphere

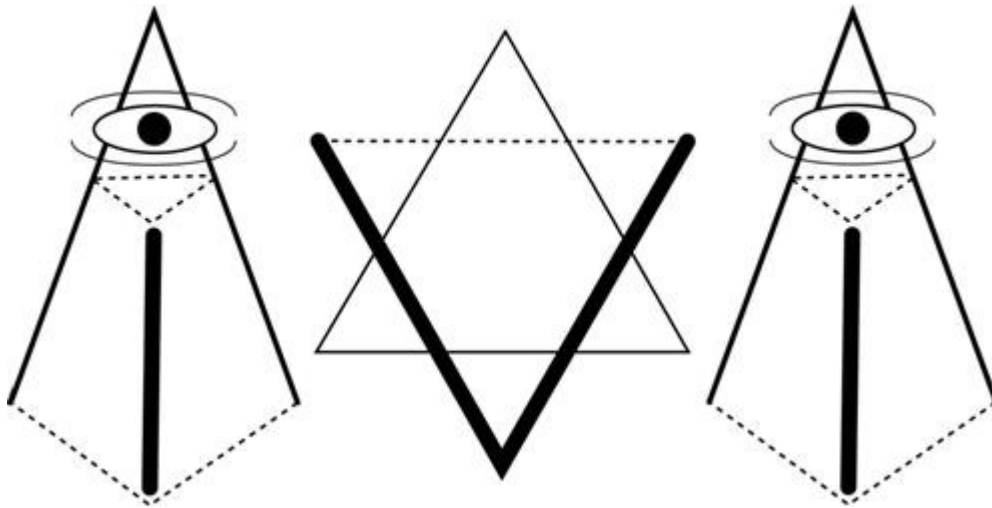


Figure 47: Symbolism of Earth soul ascension

A planetary magnetosphere is the region surrounding a planet within which its own magnetic field dominates the behavior of electrically charged particles. The Earth's magnetosphere is carved out of the solar wind, when the solar wind encounters the Earth's magnetic field. The Earth's magnetic field is close to being dipolar, although the magnetic field lines in the magnetotail are stretched out of the dipole shape by electrical currents flowing across the tail. The Earth's magnetosphere is very dynamic, and has several major components, which we denote with the numbers (1), (2), and (3) in Figure 8.

The first physical regime is interplanetary space (noted as (1) in Figure 8), where the dominant environment is the solar wind. Typical values characteristic of this region are (for high speed solar wind streams at 1A.U., ref. 37): ion number density $\sim 3 \text{ cm}^{-3}$, ion temperature $\sim 0.01 \text{ keV}$, flow speed velocity $\sim 500 \text{ km/s}$, magnetic field $\sim 4 \text{ nT}$ [27].

The second physical regime, (noted as (2), in Figure 8), is the bow shock/magnetosheath region (colored brown, noted as (2) in the figure), where the plasma environment of interplanetary space and the geophysical magnetic field become separated. The magnetopause is the boundary where the solar wind exerts a

force on the magnetosphere and the solar wind particles (electrons/protons) are repelled. The magnetosheath is the region between the magnetopause and the bow shock, where a shockwave forms from the encounter of the supersonic solar wind and the magnetosphere.

The third physical regime is the magnetosphere region (colored black, noted as (3) in Figure 8), including the inner magnetosphere or plasmasphere, dipole field, radiation belts, auroral regions, plasma/current sheet, and the magnetotail. The plasmasphere is a doughnut-shaped region located near the Earth with radial distance less than a few R_E ($R_E = 6378$ km) in the equatorial plane, and it contains relatively dense ($n_e > 10^2 \text{ cm}^{-3}$) and cold ($T_e \sim T_i \sim 1 \text{ eV}$) plasma of ionospheric origin [28]. The magnetic field in the low latitude plasmasphere region is accurately described by a dipole field, tilted at 10.8° , with a dipole moment of $7.9 \cdot 10^{25} \text{ gauss-cm}^3$ [29]. The plasma in the plasmasphere region corotates with the Earth. The magnetic field accompanying the solar wind merges with that of a planet and stretches it out to produce a long, turbulent magnetotail, or wake, on the downwind side of the planet. In the magnetotail, the solar-wind-driven flow brings the plasma to the equatorial plane, where it is concentrated in the plasma sheet. Typical values for the plasma current sheet are electron number density $\sim 1 \text{ cm}^{-3}$, ion temperature $\sim 5 \text{ keV}$, ion thermal velocity $\sim 600 \text{ km/sec}$, magnetic field $\sim 2 \text{ nT}$ [30]. At $\sim 10 R_E$, the momentum flux of the solar wind balances the Earth's magnetic field [28]. The Earth's magnetotail is several million kilometers long ($\sim 1000 R_E$).

Geostationary orbit (GEO), the orbital location where a body holds a fixed position relative to the rotating Earth, is located at $6.6 R_E$. This region is a region of high variability. Geostationary orbit tends to skim the inner boundary of the plasma sheet, and the radiation belts and ring current are located near GEO, as well. During solar quiet times, the bodies orbiting at this location are typically at dipolar-like field lines. During large magnetic storms, the bodies orbiting at GEO are within stretched field lines.

For this study, we exclude the region of low Earth orbit (LEO) below ($2 R_E$), and we focus on the following regions: the solar wind, the plasma sheet/magnetotail, the geosynchronous region, and the plasmasphere.

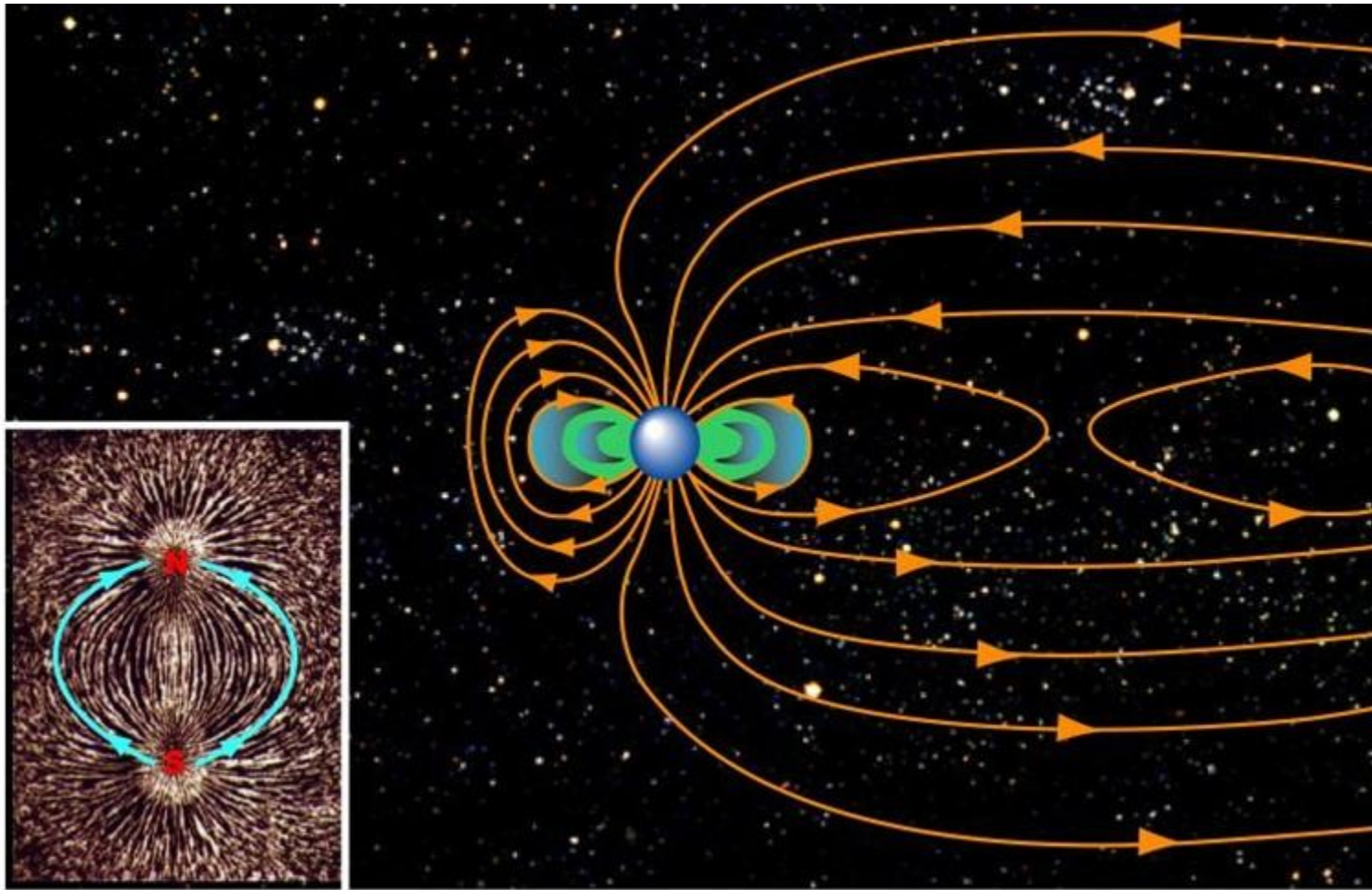


Figure 48: Earth's magnetic field lines

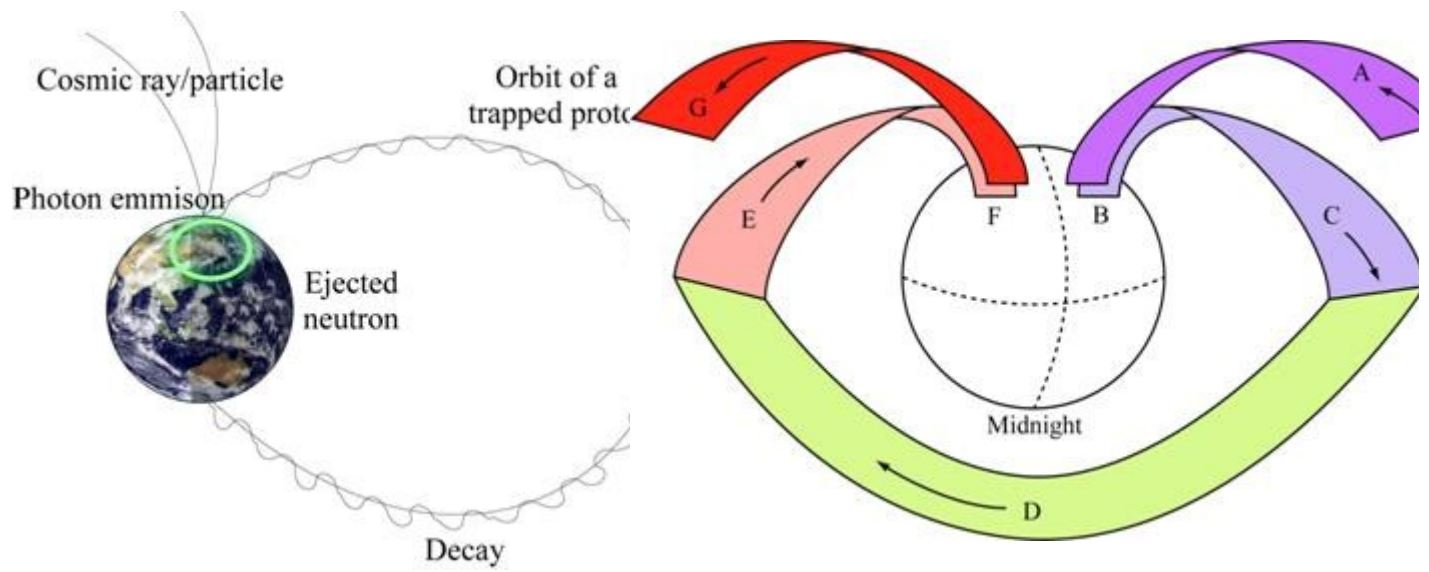


Figure 49: Trajectory of attracted particles in the magnetosphere

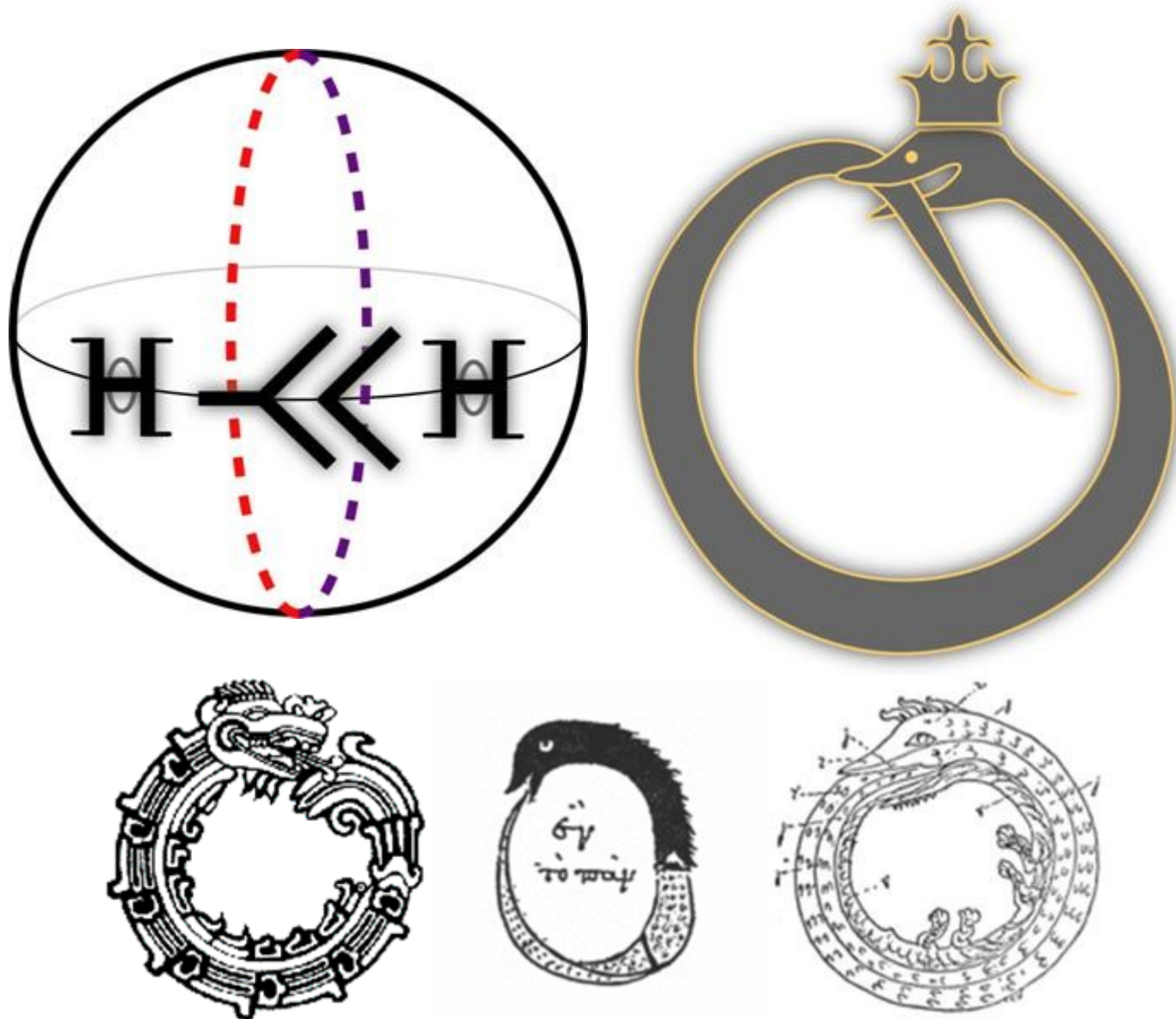


Figure 50: Esoteric aspects of Earth soul function

"Ouroboros was and is the name for the Great World Serpent, encircling the earth. The word 'Ouroboros' is really a term that describes a similar symbol which has been cross-pollinated from many different cultures. From "Ouroboros," there is the serpent or dragon gnawing at its own tail. The symbolic connotation from this owes to the returning cyclical nature of the seasons; the oscillations of the night sky; self-fecundation; disintegration and re-integration; truth and cognition complete; the Androgyne (see below); the primaeval waters; the potential before the spark of creation; the undifferentiated; the Totality; primordial unity; self-sufficiency, and the idea of the beginning and the end as being a continuous unending principle. It represents the conflict of life as well in that life comes out of life and death. 'My end is my beginning.' In a sense life feeds off itself, thus there are good and bad connotations which can be drawn. It is a single image with the entire actions of a life

cycle - it begets, weds, impregnates, and slays itself, but in a cyclical sense, rather than linear. Thus, it fashions our lives to a totality more towards what it may REALLY be - a series of movements which repeat. "As Above, So Below" - we are born from nature, and we mirror it, because it is what man wholly is a part of.

Born from this symbolic notion, there are many different cultures which share this great dragon-serpent symbol (the serpent Jormungandr, from the myth of Yggdrasil, is just one). There are some cultures that see the image as not being beneficial, but evil - like Satan. These more specific re-interpretations will be spoken of later.

It is of interest to mention that a symbol such as that of the Ouroboros is something which Carl Jung refers to as an archetype; it seems to make its way into our conscious mind time and time again in varying forms. The 19th century German chemist named Kekule dreamed of a snake with its tail in its mouth one day after dosing off. He had been researching the molecular structure of benzene, and was at a stop point in his work until after waking up he interpreted the dream to mean that the structure was a closed carbon ring. This was the breakthrough he needed.

There is another mention of the Ouroboros laying at the edge of "the sea which surrounds the world," called Pontus. The Ouroboros encircles the Universe; everything known and unknown is encompassed in its embracing coils, supporting and maintaining the earthly balance. It injects life into death and death into budding life. Its form suggests immobility with its locked jaws upon itself, yet at the same time it pushes the insistent message of perpetual movement through its twined coils. The first clues to this symbol go back as far as 1600-1700 BC in Egypt. Through the years the serpent moved on to the Phoenicians and the Greeks-who were what gave it the name "Ouroboros." The Greek translation means, "tail eater."

It has a strong relation to what is known as the Androgyne. The androgyne is the united male and female principles together. This is the prime primordial end to human endeavor, the reunion which births totality and creation. It is not unlike the idea of androgyny, which is a duality complete. "A return to wholeness."



Figure 51: Orphic egg, the "astral serpent" spiraling the planet as it's breath force (the magnetic current reconnection)

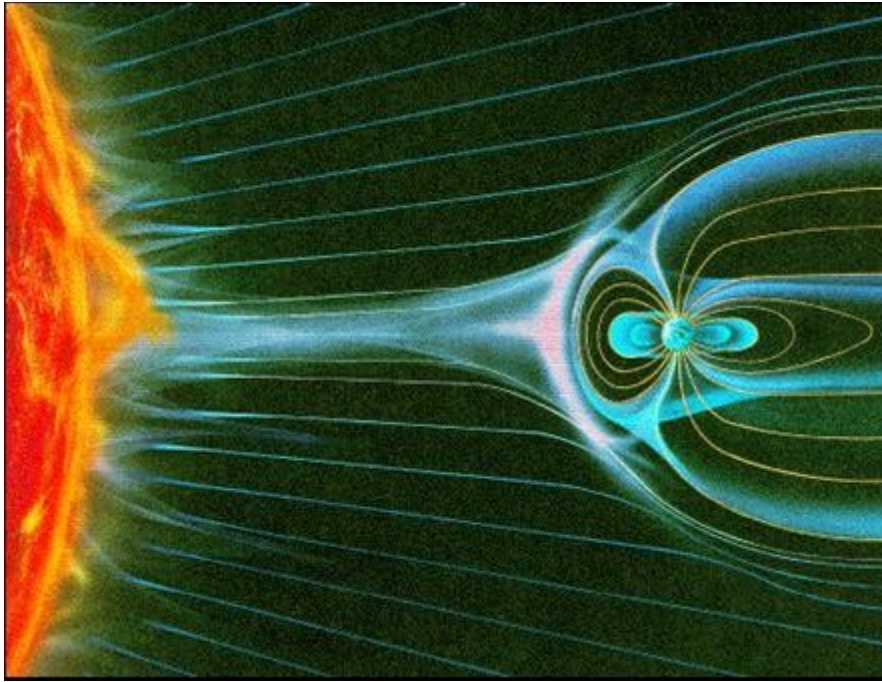


Figure 52: Symbolism of the Holy Grail in the Sun-Earth quantum connection and the Earth's magnetosphere

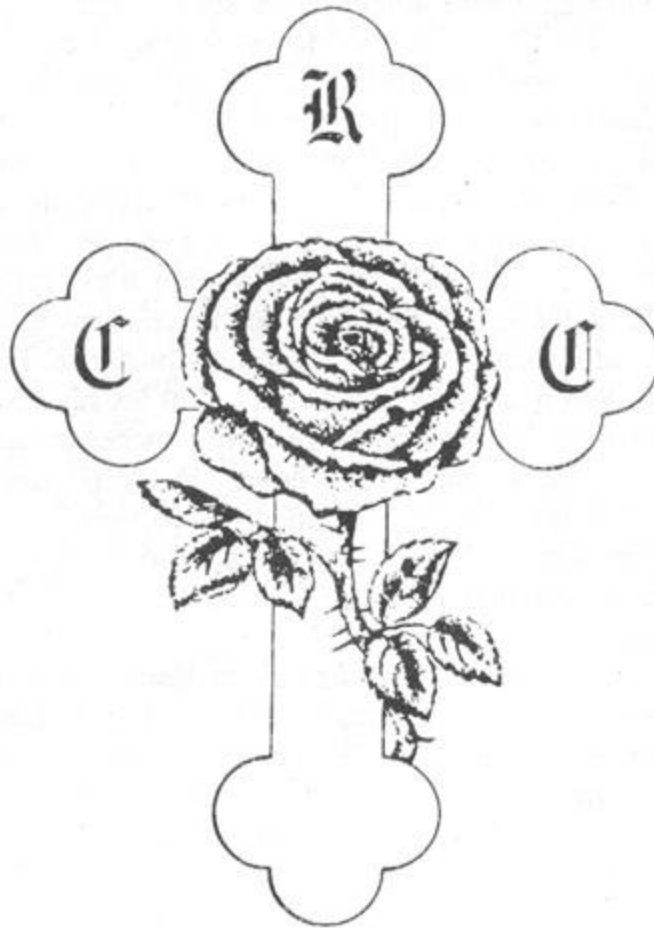


Figure 53: Rose of the world – A Rosicrucian myth



Figure 54: Ray of Gnosis pearmeting the rose of the heart

Nous

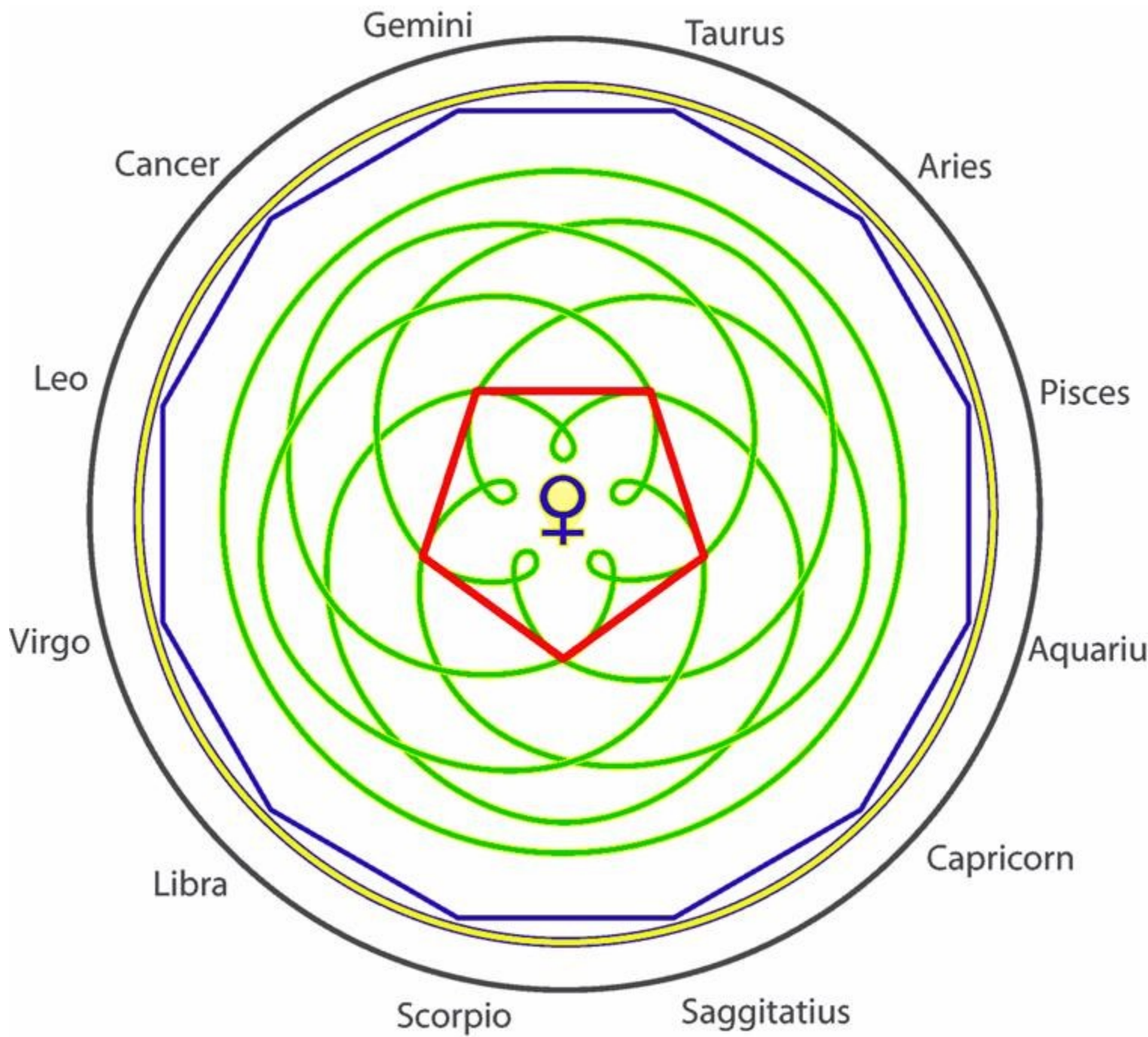


Figure 55: Venus cycle in the sky

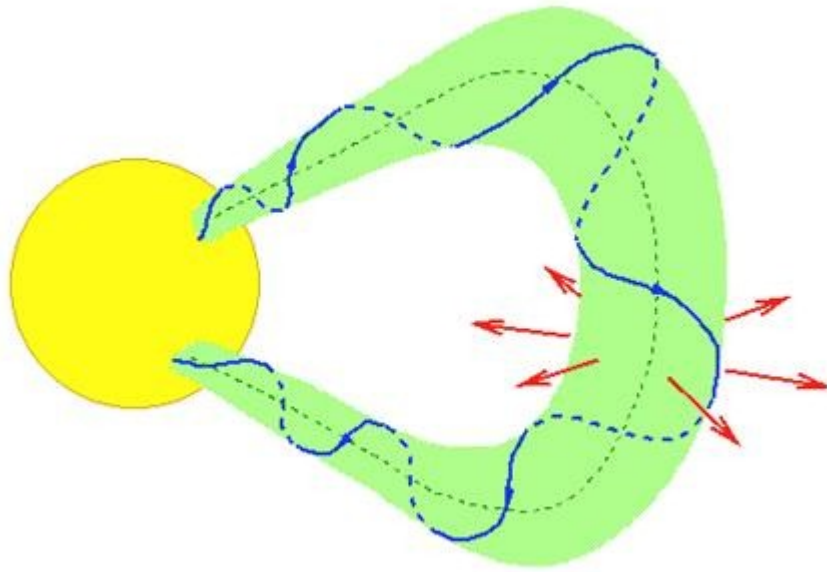


Figure 56: Coronal mass ejection

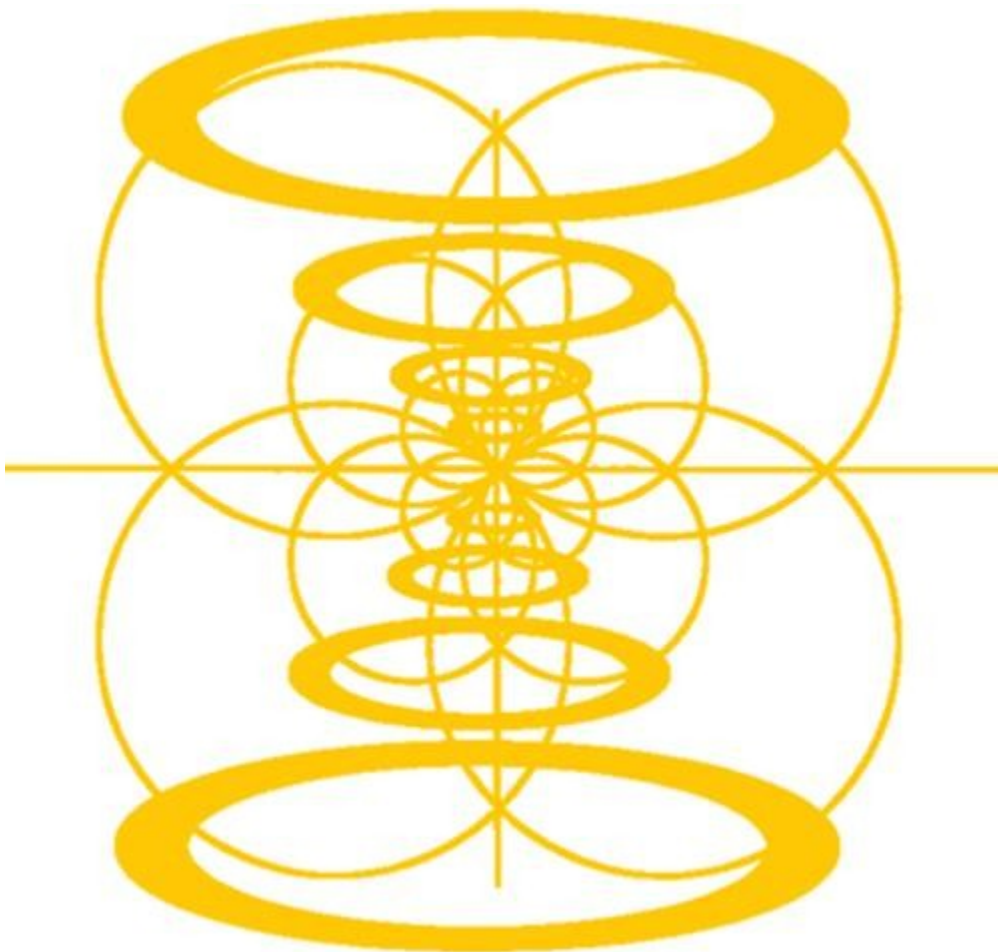


Figure 57: Solar wind's magnetic effect by possible space currents

In the drawing above, the current drift is around the Sun at a distance above and below the equatorial plain of the Sun. This current would look like donuts about the Sun. As the distance from the Sun increase more current drifts about the Sun could occur. Applying Schrodinger's wave equation for various distance and probabilities of a current and a line were drawn between the centers of the current donuts the line would cut the equatorial plain at a value generally close to a sequence like the Bode-Titus relationship. That is to say there will be a discreet mathematical jump in probable areas where a current could exist, and would create wave traps in the equatorial plain. In the wave structure there would be places of peaks and nodes where a particle or other objects could be trapped. As the solar wind electrons and protons plow into the Earth's magnetic field they will be deflected by the magnetic field. Although this is a reactionary effect, It will apply a force to the Earth. The force type is kinetic however, its is coupled to the Earth by the magnetic field. The result of the force is to push the magnetic field as a whole.

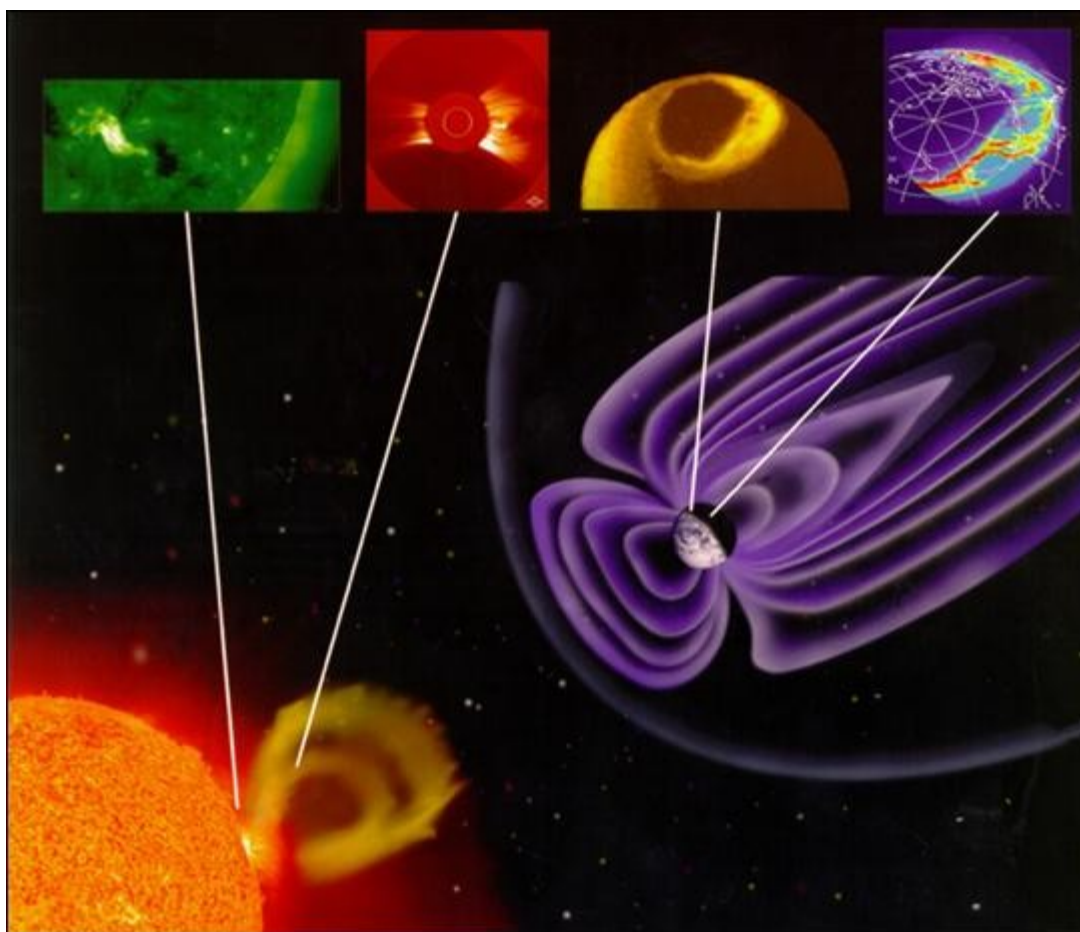


Figure 58: Effects of coronal mass ejection and solar wind on earth

	Quiet times	Disturbed times
Density	11-10 ion/cm ³	20-40 ion/cm ³
Bulk speed	100-400 km/s	800 km/s
Ion temperature	~8 x 10 ⁴ K	~3 x 10 ⁵ K
Proton energy	~600 eV	~3,000 eV
Electron energy	~0.3 eV	~1.5 eV
Magnetic field intensity	3-8 x 10 ⁻⁵ G	10-30 x 10 ⁻⁵ G
Electron cyclotron frequency		~500 /s
Proton cyclotron frequency		~0.3 /s
Energy density of magnetic field	60 eV/cm ³	1,000 eV/cm ³
Thermal energy density	40-150 eV/cm ³	500-1,500 eV/cm ³
Thermal density at bulk	6,000-10,000	100,000 eV/cm ³

speed	eV/cm^3	
Energy flux	$\sim 0.5 \frac{\text{erg/cm}^2}{\text{s}}$	$\sim 15 \frac{\text{erg/cm}^2}{\text{s}}$
Alfven speed	30-70 km/s	70-120 km/s

Table 4: Near Earth Solar Wind parameters
(taken from Principles of Plasma Physics)

Magnetic Storms and Ring Currents

The method used by Gauss and his followers to analyze the observed magnetic field showed that at least 99% of it originated inside the Earth. But external sources also existed: magnetic storms (typically changing the field by 1% or less) were world-wide phenomena and seemed to indicate that a powerful electric current was established around the Earth's equator, flowing at an undetermined distance for many hours or even days. Arthur Schuster in 1911 gave it the name we still use, the ring current [*Smith 1963*].

The polar aurora (sometimes known as aurora borealis or northern lights) also seemed to be linked to the magnetic field. Its dancing and glowing ribbons (usually a shade of green, but sometimes red) tend to maintain a constant distance from the magnetic pole of about 2-3000 kilometers (i.e. a constant "magnetic latitude"); near the magnetic pole itself they are rarely seen. In great magnetic storms they temporarily descend to lower (magnetic) latitudes and become visible at centers of population, more distant from the poles. At such locations the aurora is a rare phenomenon, but it isn't so for residents of central Alaska or Canada. Auroral ribbons often consist of many parallel rays (Figure 11), constantly fading or brightening, each aligned with the direction of local magnetic field lines. As found in 1741 by Hiorter and Celsius in Sweden [Beckman, 2000], bright displays are also accompanied by local disturbances in the Earth's magnetic field, often several times stronger than those of world-wide magnetic storms.





Figure 59: Photos of auroral ovals taken in Alaska

What caused all this? Kristian Birkeland (1867-1917) in Norway thought (correctly) that the glow came from fast electrons hitting the high atmosphere, and tried to simulate the phenomenon on a small scale [see *Stern*, 1989]. Inside a glass vacuum chamber [Bruntland, 1998] he sent an electron beam towards a magnetized sphere representing the Earth, which like Gilbert he named *terrella* (**Figure 12**). He found that such beams tended to follow magnetic field lines, which guided them to the poles of a magnet or a *terrella* inside the chamber. The renowned French mathematician Henri Poincaré (1854-1912) then calculated that, at least with straight converging field lines, such electrons would in fact spiral along those lines and would be reflected from regions of more intense magnetic field, closer to the cone's apex.

Auroral outbursts were known to be associated with solar activity, and Birkeland guessed that they originated in beams of electrons emitted from the Sun. However, neither he nor his younger associate, the mathematician Carl Störmer (1874-1957), could explain why the aurora avoided the magnetic poles themselves, preferring instead to occur in large ring-shaped regions around them [Störmer, 1955].

Birkeland also observed magnetic disturbances associated with auroras, using a network of 4 ground stations, and concluded that they arose from electric currents flowing in the high atmosphere, along auroral arcs, linked at their ends to distant space, where the circuit somehow closed. The auroras and their associated currents occasionally intensified for an hour or so, and Birkeland termed such events polar magnetic storms. Unlike regular magnetic storms, these were localized and could not

be observed at lower latitudes, where most magnetic observatories (as well as centers of population) were located.

The correlation between magnetic storms and activity on the Sun indeed suggested that *something* was being emitted by the Sun towards Earth. But not beams of electrons, as Birkeland had suggested, for it could be shown that electrostatic repulsion would disperse such beams long before they reached Earth. Instead, Sydney Chapman (1882-1970) and Vincent Ferraro (1907-1974) proposed in 1930 that the Sun emitted huge clouds of plasma, containing equal numbers of positive charges and electrons. Being electrically neutral, such a cloud could travel without dispersing.

However, it could not penetrate the Earth's magnetic field. To do so, its ions and electrons would have to attach themselves to terrestrial field lines and share them with terrestrial plasma, e.g. that of the ionosphere. By the theorem of field line preservation of the "freezing" of field lines (see section 13 on the solar dynamo), particles which initially did not share field lines cannot suddenly start doing so.

Field lines linked to the Earth's poles would therefore remain confined inside a "Chapman-Ferraro cavity" around which the cloud would wrap itself. The sudden confinement was expected to compress the Earth's field lines, and explained a small abrupt jump in magnetic intensity ("sudden commencement") observed on the surface at the start of many magnetic storms. Chapman and Ferraro speculated that somehow the cavity also generated the ring current, but how this happened they did not know.

The ring current presumably consisted of charged particles trapped in the Earth's magnetic field. Störmer traced some of their motions by numerical calculations (in 1908 these had to be done by hand), but his work concentrated on particles with extremely high energies, not like those of the aurora. S. Fred Singer however showed [Singer, 1957] that low energy particles, of either sign, could also do the job, provided their numbers were large enough. Such particles spiraled around field lines while sliding along them, but the sliding motion would stop and reverse (as Poincaré had shown) whenever the particle approached regions of more intense magnetic field. In the field of the Earth, the magnetic intensity increased as one approached the "feet" of the field line in the atmosphere, since these were the points (on any given field line) closest to the center of the Earth. Many trapped particles would therefore be reflected before reaching the dense atmosphere, and could stay trapped for a long time, bouncing back and forth across the equator (**Figure 13**).

Singer noted a slow secondary mechanism that would meanwhile move trapped particles from their guiding field lines, attaching them to neighboring ones and gradually transporting them all the way around the Earth (see fig. 4, [Stern, 1989]). Electrons would be transported in one direction, ions in the opposite one--and in either case, the electric current they carried around the Earth was in the direction required by the ring current.

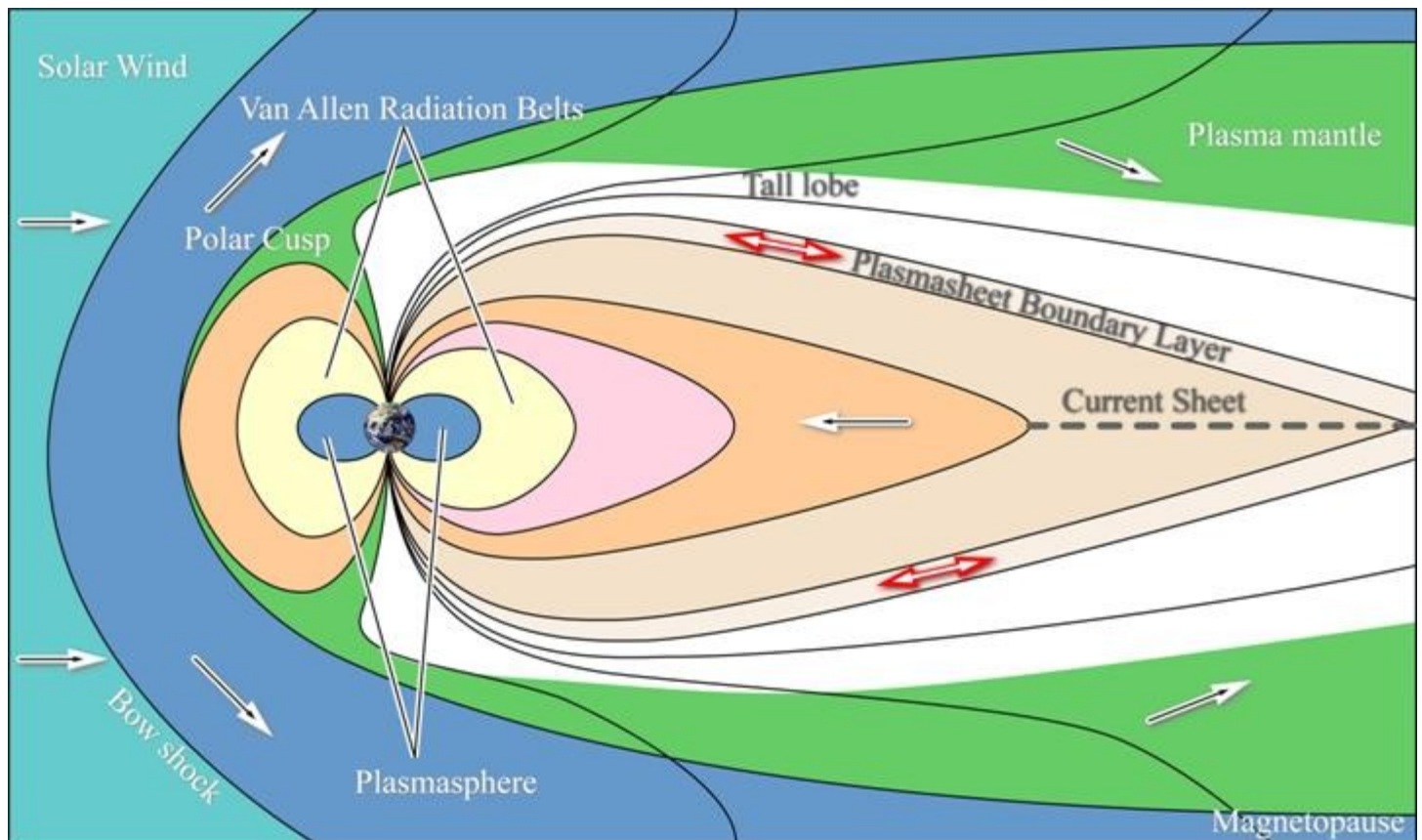


Figure 60: Magnetosphere layers

The Magnetosphere

Sputnik 1, launched on October 4, 1957, was the first artificial satellite of Earth. It was followed by several thousand others, many of them carrying scientific instruments. Scientific satellites soon confirmed some earlier guesses, disproved or modified others, and added unexpected features to the picture.

The satellites did find belts of trapped ions and electrons, moving in the way proposed by Singer--but they were a permanent feature, not a temporary one present only during magnetic storms [e.g. Stern, 1996; Stern and Ness, 1982]. The first US satellites, Explorers 1 and 3 built by James Van Allen and his team at the University of Iowa, were launched in early 1958 and discovered an intense belt of trapped fast

protons, above the magnetic equator. This "inner radiation belt" turned out to be a secondary product of the cosmic radiation, which is a population of extremely energetic protons believed to fill our galaxy. Cosmic rays provide a rather weak source, but the trapping is quite stable, allowing the protons to accumulate over a long time.

The inner belt, peaking at distances between 1.3 and 2 R_E (earth radii) from the Earth's center, was dense enough to constitute a radiation hazard (astronauts can cross it safely, but only if they do not linger), however it was not extensive enough to carry the ring current. That was done by the outer radiation belt (2-8 R_E), found to contain protons and electrons of moderate energies but in much greater numbers. Magnetic storms greatly increased its population, and with it also the intensity of the ring current, though some of the outer belt and of the ring current existed at all times.

The Sun indeed emitted plasma which flowed out radially at great speed, but again, it did so at all times, not just during magnetic storms as Chapman and Ferraro had assumed. That was the solar wind, predicted in 1958 by Eugene Parker, after he tried to calculate the equilibrium structure of the Sun's corona. The calculation indicated that an extremely hot plasma like that of Sun's corona could not be held in gravitational equilibrium, the way the Earth's atmosphere was. Instead, Parker's calculation suggested that the Sun continually sloughed off plasma in a supersonic stream, expanding radially in all direction. Though Parker's prediction was at first controversial, spacecraft instruments soon confirmed it. In 1961 its flow was measured by a "Faraday cup" placed aboard Explorer 10 by Herb Bridge and Bruno Rossi (1905-93), and more extensively by the space probe Mariner 2 in 1962.

By then Explorer 12 had crossed a well defined boundary on the sun-facing side of the "Chapman-Ferraro cavity" (renamed by Tom Gold "magnetosphere"), suggesting that the cavity also existed at all times. The boundary was named "magnetopause." The "sudden commencement" jumps of the magnetic intensity, at the onset of many magnetic storms, turned out to mark the arrival of fast plasma clouds, which plowed through the ordinary solar wind and created shock fronts ahead of themselves. One feature which no one had expected before the satellite era was the long magnetic tail behind the Earth. On the sunward side the solar wind compressed the magnetospheric cavity, creating an abrupt boundary at an average distance of about 10.5 R_E , though some interplanetary clouds, associated with magnetic storms, could push it to distances of 6 R_E and even less. On the night side, on the other hand, the Earth's field lines were stretched out in two great bundles, each linked to one of the polar caps (**Figure 14**). Later spacecraft would observe these bundles at distances of more than 3 times that of the Moon, 200 R_E from Earth and beyond.

Wedged between the two bundles--the two "tail lobes"--was the tail's plasma sheet, a layer of hot plasma which turned out to be the main source of auroral electrons. The magnetic field of the plasma sheet is weak, with hairpin-shaped magnetic field lines, and that turned it into a somewhat unstable region, the origin of many of the magnetic disturbances observed in space and on the ground. The reason auroras are rare near the magnetic poles, but occur fairly regularly along large rings surrounding each pole, is that auroral electrons (and their associated electric currents) are guided

along magnetic field lines. Magnetic field lines from the "auroral oval" lead back to the plasma sheet, whereas those from the magnetic poles themselves (and the regions near them) end up in the twin bundles of the tail lobes, which contain rather little plasma.

Birkeland's observations were also validated, again with some modifications. What he called polar magnetic storms are now known as magnetic substorms, so named by Chapman who at first viewed them as component parts of magnetic storms--before it was realized that they occurred at other times as well. They represent violent changes in the plasma sheet which energize its ions and electrons, hurl them earthward, and in that way contribute to the outer ring current. Magnetic storms, following the arrival of a fast cloud, create very powerful disturbances of this kind and seem to be the main agent replenishing the ring current, though the details still need to be worked out.

The electric current system, which Birkeland claimed accompanied the aurora, was also observed, though its structure was somewhat different from what Birkeland had proposed. It forms an intricate pattern first traced by Alfred Zmuda and James Armstrong, using a "piggyback" (free ride) magnetometer aboard the Navy satellite Triad. Milo Schield, Alex Dessler and John Freeman, who theoretically predicted such currents in 1969, named them "Birkeland currents" and the name is still used. Birkeland currents provide the energy for most auroral arcs, but auroral electrons are then energized only close to Earth, getting their main push in the lowest 1-1.5 R_E of their guiding field lines.

Magnetic Reconnection

In such a brief description it is hard to do justice to the extensive field of magnetospheric physics. Like most physical processes, those of the magnetosphere, too, must usually be paid for in energy, the universal currency of physics. Except for the inner belt, the source of that energy seems to be the solar wind. If the separation between interplanetary and terrestrial field lines were strictly enforced, it would be rather difficult to transmit energy from one region to the other, but there exists a loophole. Magnetic field lines can change their linkage and "reconnect" in new ways, if the plasma in which they are embedded flows through an "x-type neutral point" (or "neutral line") at which the field intensity drops to zero and field lines cross in the pattern of the letter x.

James Dungey in England proposed [*Dungey, 1961; Stern, 1986*] that two such points were formed on the magnetopause, the boundary of the magnetosphere. One occurred on the sunward side, where interplanetary magnetic field lines and terrestrial lines formed an x-shaped neutral point (or a continuous line of such points), at which they split up and reconnected. If the interplanetary field points exactly south, the plasma flows along the thick arrows in Figure 15--the solar wind plasma arriving from the left and the magnetospheric plasma coming from the right. The northern half of the terrestrial line then connects to the northern half of the interplanetary line, a

similar process joins the southern halves, and the plasmas attached to the newly reconnected lines then flow outwards--up or down, in Figure 15.

This, Dungey assumed, created "open" field lines, starting in the polar regions of Earth and extending to interplanetary space, and along such lines, energy and plasma easily flowed from the solar wind to the magnetosphere. The process ended (in Dungey's original theory) at a second neutral point in the distant tail, where reconnection re-united the two terrestrial halves and the two interplanetary halves, after which the two plasmas were again separated.

If the interplanetary field lines pointed not southwards but just slanted towards the south, reconnection is a bit more complicated, introducing a bend in each "open" field line, at which the direction of the terrestrial line gradually changes over to that of the interplanetary one. If the field line slants northwards, the bending is more severe--the northern half of the terrestrial field line must link up with the interplanetary half which comes from the south, and vice versa. If the northward slant is steep, reconnection is expected to become increasingly difficult--the interplanetary field lines just have the "wrong direction" for linking up.

The actual process is probably much more complicated, but one of its predictions was amply confirmed. It was found [*Fairfield and Cahill, 1966*] that the most important factor promoting magnetic substorms, large Birkeland currents and other active phenomena was the slant of the interplanetary magnetic field. With southward slant activity was likely, with northward slant it was inhibited, and other factors--such as the velocity and density of the solar wind--were much less important.

Magnetic reconnection may also occur in the plasma sheet, constituting there an important element of the substorm process, but details will have to wait for more thorough studies of the magnetosphere, using simultaneous data from a much larger number of satellites than is available now.

Reconnection, acceleration and energization of plasma in the magnetosphere all involve a complicated interplay between magnetic and electric fields. Static magnetic fields can trap and steer electrons and ions without changing their energy. Since the fields do not have to supply energy, they can maintain the trapping indefinitely without requiring any additional energy input.

On the other hand, an electric field, a region of electric forces, is not only able to energize particles, it can also help them move from one field line to another, e.g. enter regions of magnetic trapping or escape from them. Electric fields therefore have a central role, both in bringing fresh particles into the ring current, as happens during magnetic storms, and in adding energy to those particles.

In addition, electric forces parallel to magnetic field lines are also instrumental in accelerating (negative) auroral electrons downward. By its nature, any "parallel electric field" which does so, will also grab positive oxygen ions from the ionosphere

and accelerate them upwards, towards the magnetic equator, where many join the ring current; such "ion beams" were discovered in 1977 by the USAF satellite S3-3. Furthermore, electric fields are also essential to the energy exchange in substorms and to reconnection. The details of such processes (to the extent they are understood) are, however, completely beyond the scope of this brief and non-mathematical overview.

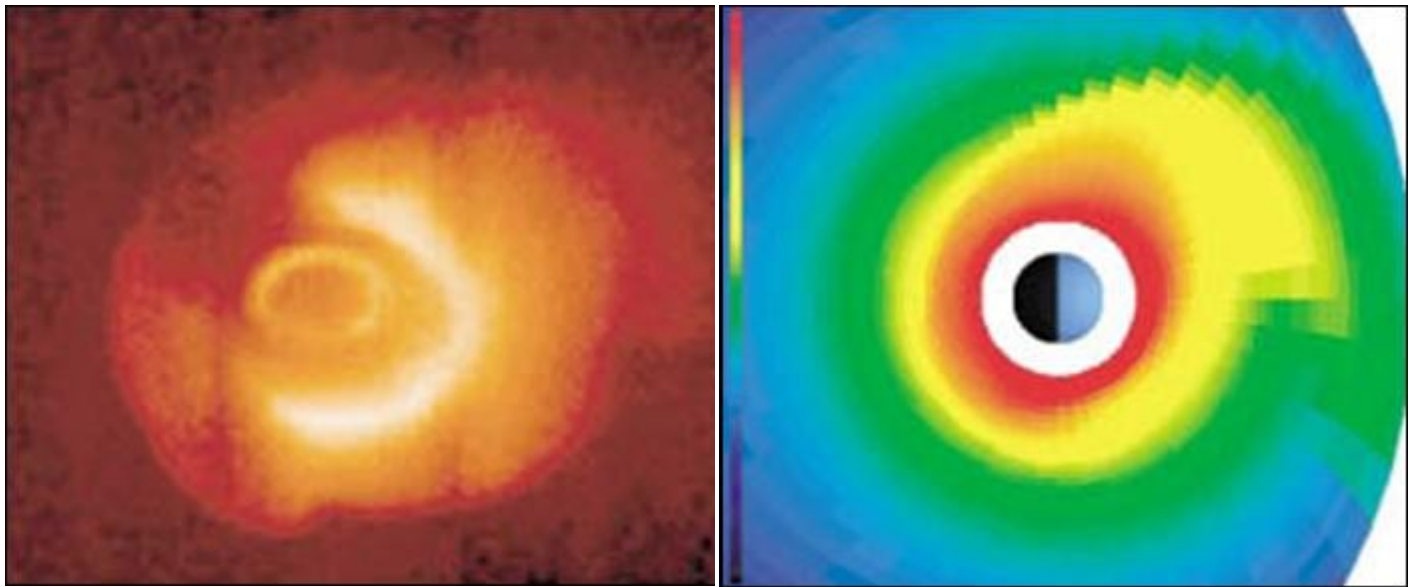


Figure 61: Physical aspects of the Earth's magnetic field (NASA)

The Earth's Dynamo

If a fluid dynamo exists inside the Earth, it has to be in its core, with about half the radius of the Earth. The reason is that the process requires a conducting fluid, and the propagation of earthquake waves has suggested the core is liquid, with a solid inner core in its middle [*Brush, 1980*]. Its high density fits a liquid metal, generally believed to be iron (possibly, with other elements dissolved in it), a relatively abundant element. The iron has sunk to the center of the Earth because it is heavy, the same reason that molten iron sinks to the bottom of a blast furnace.

For a while, around 1950, another idea was proposed, namely that every spinning massive object developed an intrinsic magnetic field, proportional to its angular momentum. According to that view, the field asymmetries observed on the Earth's surface were due to secondary processes, such as the circulation of liquid iron in the core. While Gilbert suggested that the Earth rotated because it was magnetic, this

explanation argued the opposite--the Earth was magnetic because it rotated. Arthur Schuster (1851-1934) was the first to propose the idea [*Schuster, 1912; Warwick, 1971*], and its main supporter in the 20th century was Patrick M. Blackett (1897-1974), a British physicist who was awarded the 1948 Nobel prize for his work on cosmic rays [*Blackett, 1947*]. By then it was known that in electrons and protons, spin and magnetic moment were related: couldn't the same hold for matter at large? However, the observation that the field did not weaken in deep mines [*Runcorn, 1948; includes appendix by Sydney Chapman*] was evidence against the idea, and Blackett finally ruled it out by an experiment with a spinning gold sphere [*Blackett, 1952*].

Meanwhile other physicists--initially, Walter Elsasser at Columbia U.-- tried to find mathematical solutions to the dynamo problem [*Elsasser, 1946, 1947, 1956b*]. The method devised by Gauss to represent the Earth's internal field outside the region of electrical currents can be generalized to describe any toroidal and poloidal fields, and this generalization should in principle be applicable to represent the flows and fields in the Earth's core. Unfortunately, because of Cowling's "anti-dynamo" theorem, no axially symmetric solutions were expected, leading researchers to assume a most general class of fields and motions. This produced complicated relations, which led to even more complicated ones, with no closure in sight.

For a while some scientists wondered whether any solutions existed at all. Then in 1964 *Stanislaw Braginsky* [1964a, b] in Russia surprised the world by producing an entire class of solutions which were almost symmetric--a symmetric field, plus a small addition. Because the addition was small, the procedure converged.

All these were solutions of the "kinematic dynamo problem," in which the flow pattern of the conducting fluid could be freely specified. A realistic model of the dynamo also requires a mechanism and a source of energy driving the flow. *Bullard [1949]* pointed out that a modest amount of heat generation by radioactivity would suffice. Braginsky suggested that the solidification of molten iron and its deposition on the inner core could also supply the heat which produced the flows and thus drive the dynamo effect.

Considerable progress has taken place since then [*Levy, 1976, Inglis, 1981, Jacobs, 1987 (vol. 2), Buffett, 2000, Roberts and Glatzmaier, 2000*]. The problem of feedback from toroidal to poloidal modes was addressed by the "alpha-mode" dynamo of *Steenbeck, Krause and Rädler [1966]* of the Institute of Astrophysics in Potsdam, Germany. They showed that fluid turbulence whose statistical properties had no mirror symmetry could lead to a mean electromotive force, driving electric currents whose magnitude was __times the magnetic intensity, in the direction of the underlying average field. This may be viewed as a generalization of Parker's idea for explaining the solar cycle. An interesting "dynamo experiment" in the laboratory was reported by

Lowes and Wilkinson [1963], who spun two iron cylinders (each representing an eddy) inside a container of mercury, at right angles to each other. When the angular velocity exceeded a certain value, the magnetic field jumped to a new higher plateau, and that was viewed as the initiation of dynamo action.

One interesting development has been the mathematical simulation of the dynamo process, using high-speed computers [*Glatzmaier and Roberts, 1997; Glatzmaier et al., 1999; Coe et al, 2000*]. The simulation assumes a heat source in the core and heat loss through the core-mantle interface. Dynamo action is generally obtained, but the complexity of the field and the frequency of main field reversals (discussed in the next section) depend greatly on the distribution of the heat loss--whether it was uniform across the interface, highest at the pole, equator or in between, etc. The simulations also found occasional "excursions" in which the field seemed to head towards a reversal but then reasserted its original polarity, a class of events also deduced from the paleomagnetic record. Interestingly, a simulation run with a much smaller inner core produced no reversals at all.

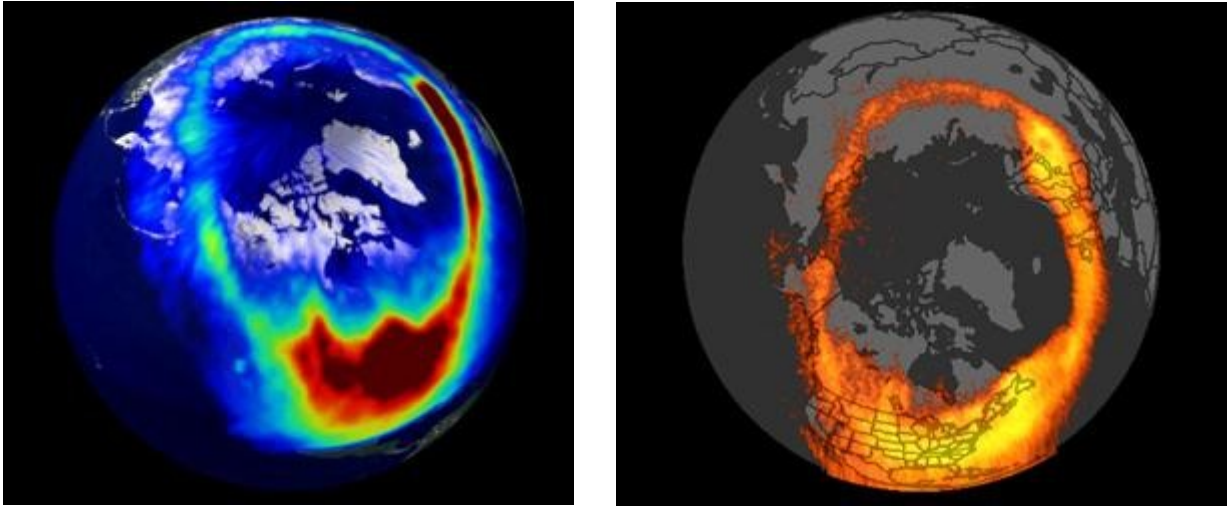


Figure 62: Northern hemisphere auroral ring

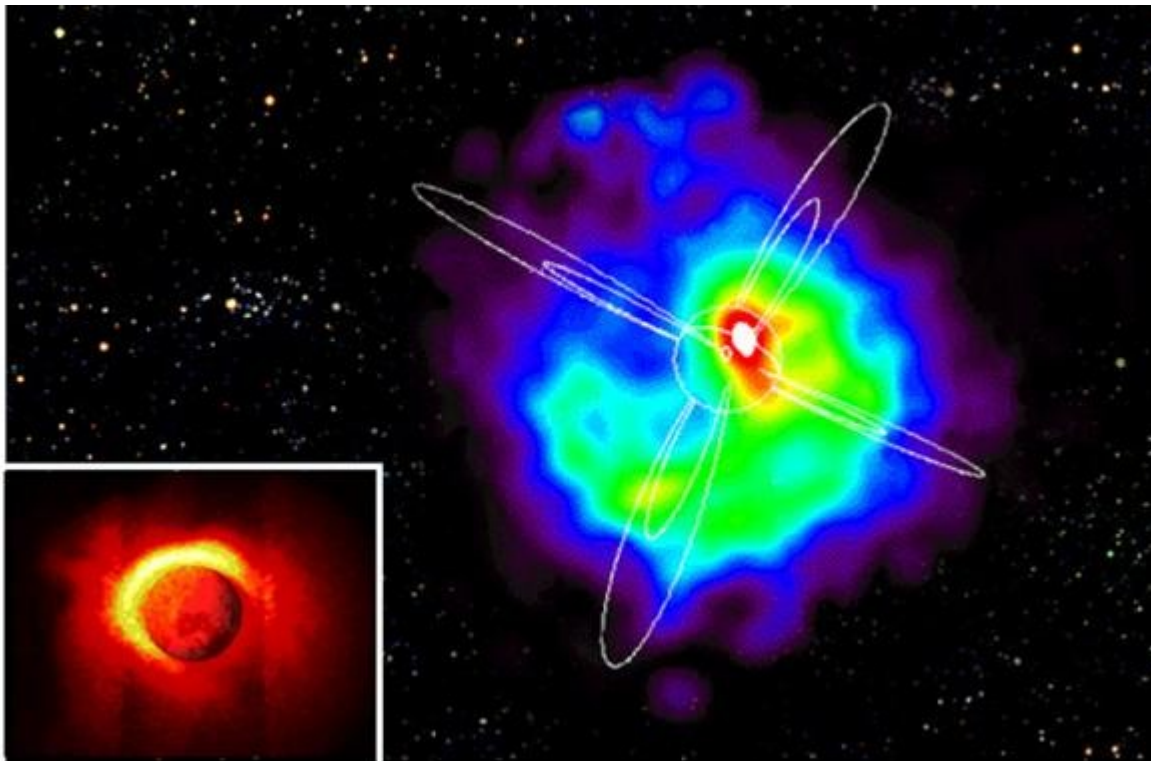


Figure 63: Plasma clouds near Earth (NASA)

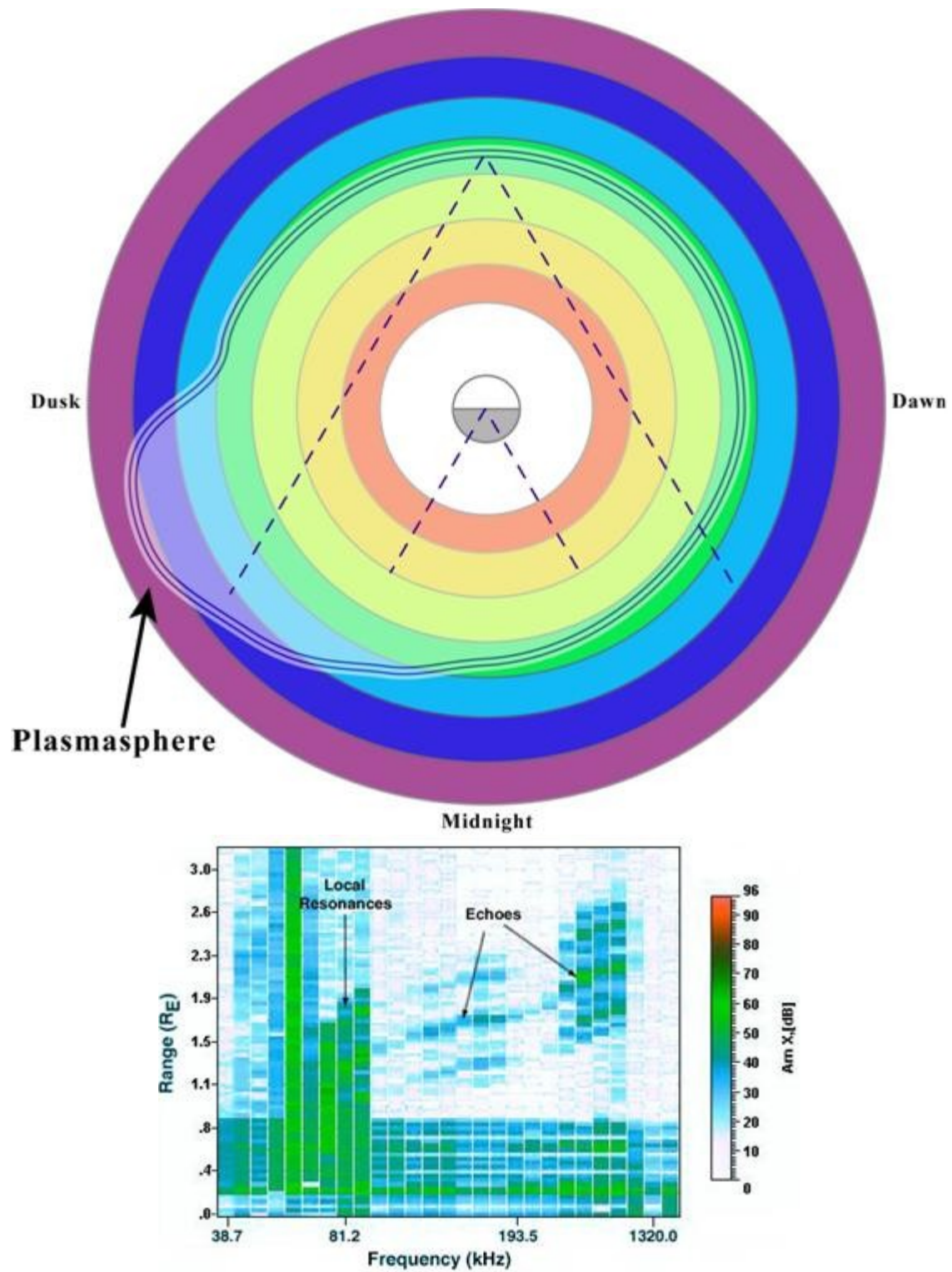


Figure 64: High-Energy plasmasphere occurrences and quantum phenomena

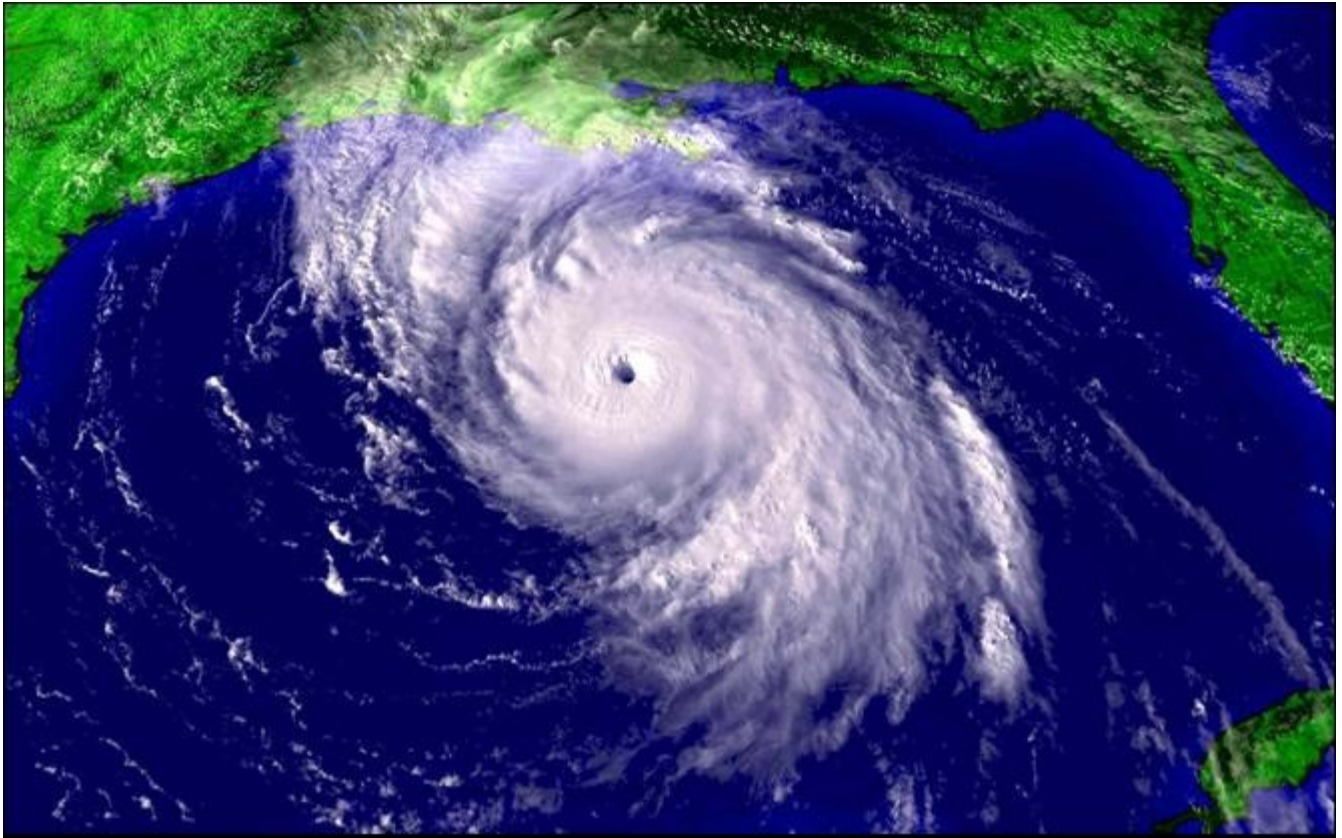


Figure 65 : Hurricane Lili (NASA)

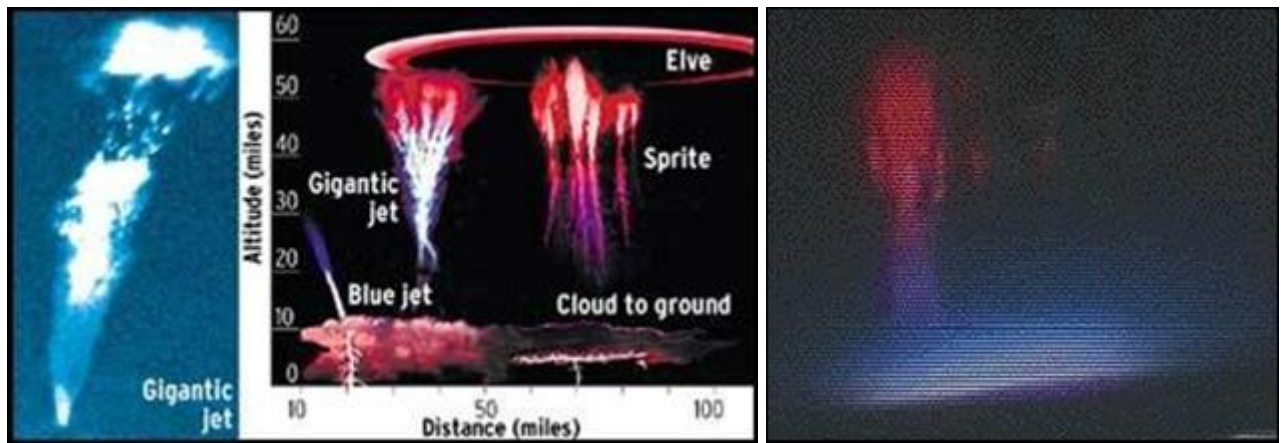


Figure 66: Stratospheric quantum phenomena of elves and jets ejected during high-power storms (NASA)

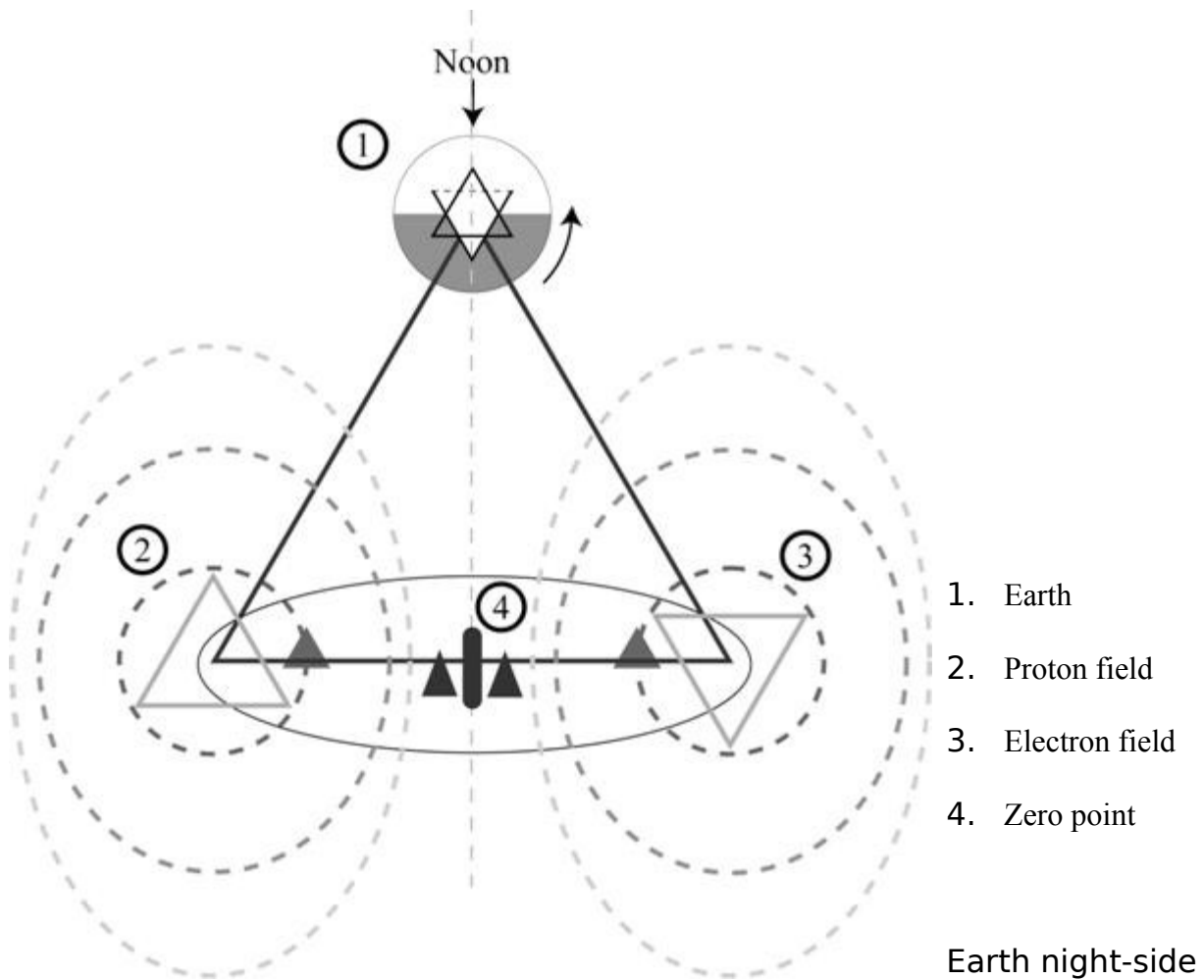


Figure 67: Earth as a quantum vehicle

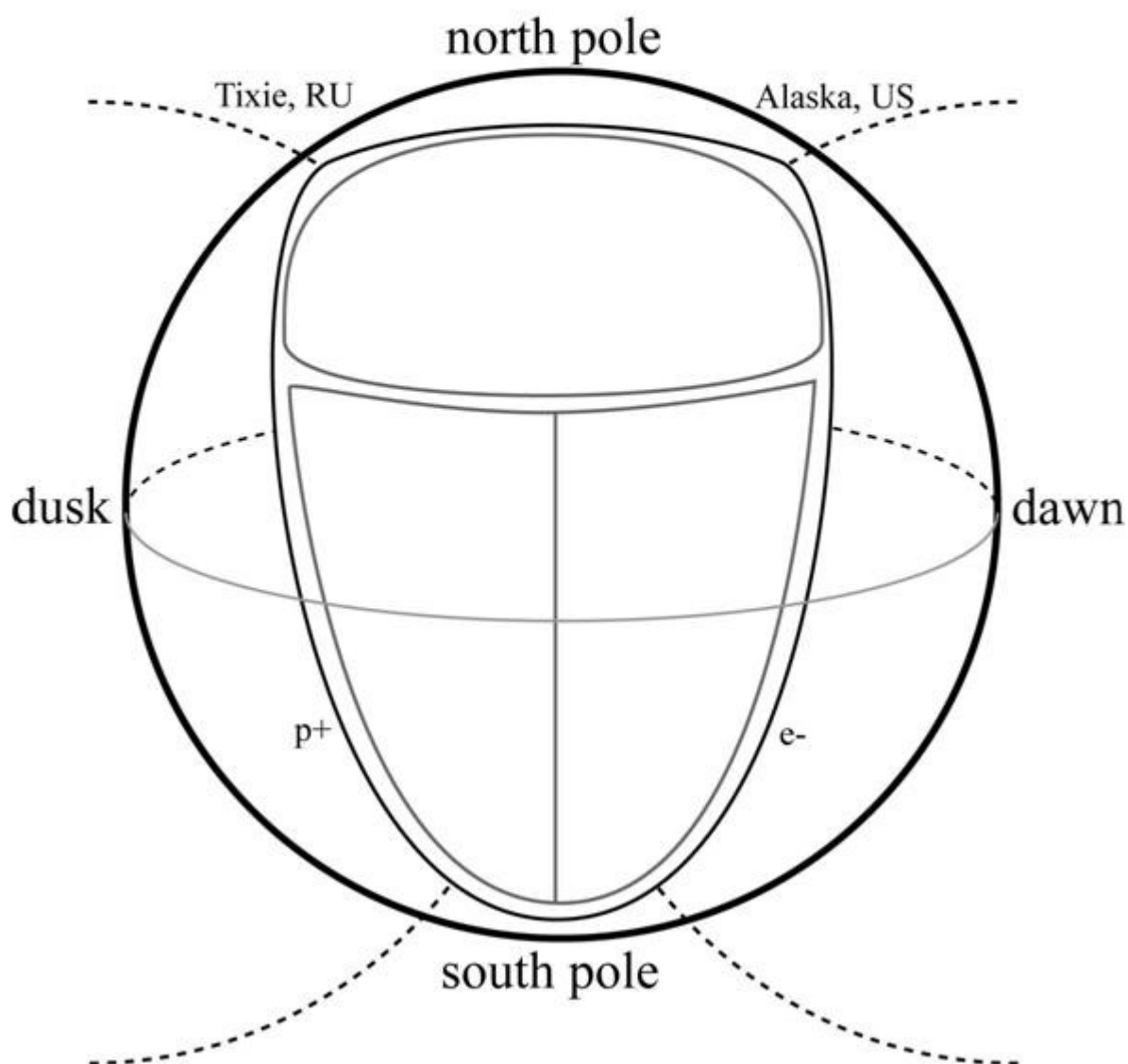




Figure 68: Earth soul in the Egyptian scarab symbol

An Introduction to Zero-Point Energy

Quantum physics predicts the existence of an underlying sea of zero-point energy at every point in the universe. This is different from the cosmic microwave background and is also referred to as the electromagnetic quantum vacuum since it is the lowest state of otherwise empty space. This energy is so enormous that most physicists believe that even though zero-point energy seems to be an inescapable consequence of elementary quantum theory, it cannot be physically real, and so is subtracted away in calculations.

A minority of physicists accept it as real energy which we cannot directly sense since it is the same everywhere, even inside our bodies and measuring devices. From this perspective, the ordinary world of matter and energy is like a foam atop the quantum vacuum sea. It does not matter to a ship how deep the ocean is below it. If the zero-point energy is real, there is the possibility that it can be tapped as a source of power or be harnessed to generate a propulsive force for space travel.

The propellor or the jet engine of an aircraft push air backwards to propel the aircraft forward. A ship or boat propellor does the same thing with water. On Earth there is always air or water available to push against. But a rocket in space has nothing to push against, and so it needs to carry propellant to eject in place of air or water. The fundamental problem is that a deep space rocket would have to start out with all the propellant it will ever need. This quickly results in the need to carry more and more propellant just to propel the propellant. The breakthrough one wishes for deep space travel is to overcome the need to carry propellant at all. How can one generate a propulsive force without carrying and ejecting propellant?

There is a force associated with the electromagnetic quantum vacuum: the Casimir force. This force is an attraction between parallel metallic plates that has now been well measured and can be attributed to a minutely tiny imbalance in the zero-point energy in the cavity between versus the region outside the plates. This is not useful for propulsion since it symmetrically pulls on the plates. However if some asymmetric variation of the Casimir force could be identified one could in effect sail through space as if propelled by a kind of quantum fluctuation wind. This is pure speculation.

The other requirement for space travel is energy. A thought experiment published by physicist Robert Forward in 1984 demonstrated how the Casimir force could in principle be used to extract energy from the quantum. Theoretical studies in the early 1990s verified that this was not contradictory to the laws of thermodynamics (since the zero-point energy is different from a thermal reservoir of heat). Unfortunately the Forward process cannot be cycled to yield a continuous extraction of energy. A Casimir engine would be one whose cylinders could only fire once, after which the engine become useless.

Origin of zero-point energy

The basis of zero-point energy is the Heisenberg uncertainty principle, one of the fundamental laws of quantum physics. According to this principle, the more precisely one measures the position of a moving particle, such as an electron, the less exact the best possible measurement of momentum (mass times velocity) will be, and vice versa. The least possible uncertainty of position times momentum is specified by Planck's constant, h . A parallel uncertainty exists between measurements involving time and energy. This minimum uncertainty is not due to any correctable flaws in measurement, but rather reflects an intrinsic quantum fuzziness in the very nature of energy and matter.

A useful calculational tool in physics is the ideal harmonic oscillator: a hypothetical mass on a perfect spring moving back and forth. The Heisenberg uncertainty principle dictates that such an ideal harmonic oscillator -- one small enough to be subject to quantum laws -- can never come entirely to rest, since that would be a state of exactly zero energy, which is forbidden. In this case the average minimum energy is one-half h times the frequency, $hf/2$.

Radio waves, light, X-rays, and gamma rays are all forms of electromagnetic radiation. Classically, electromagnetic radiation can be pictured as waves flowing through space at the speed of light. The waves are not waves of anything substantive, but are in fact ripples in a state of a field. These waves do carry energy, and each wave has a specific direction, frequency and polarization state. This is called a "propagating mode of the electromagnetic field."

Each mode is subject to the Heisenberg uncertainty principle. To understand the meaning of this, the theory of electromagnetic radiation is quantized by treating each mode as an equivalent harmonic oscillator. From this analogy, every mode of the field must have $hf/2$ as its average minimum energy. That is a tiny amount of energy, but the number of modes is enormous, and indeed increases as the square of the frequency. The product of the tiny energy per mode times the huge spatial density of modes yields a very high theoretical energy density per cubic centimeter.

From this line of reasoning, quantum physics predicts that all of space must be filled with electromagnetic zero-point fluctuations (also called the zero-point field) creating a universal sea of zero-point energy. The density of this energy depends critically on where in frequency the zero-point fluctuations cease. Since space itself is thought to break up into a kind of quantum foam at a tiny distance scale called the Planck scale (10^{-33} cm), it is argued that the zero point fluctuations must cease at a corresponding Planck frequency (10^{43} Hz). If that is the case, the zero-point energy density would be 110 orders of magnitude greater than the radiant energy at the center of the Sun.

Connection to inertia and gravitation

When a passenger in an airplane feels pushed against his seat as the airplane accelerates down the runway, or when a driver feels pushed to the left when her car makes a sharp turn to the right, what is doing the pushing? Since the time of Newton, this has been attributed to an innate property of matter called inertia. In 1994 a process was discovered whereby the zero-point fluctuations could be the source of

the push one feels when changing speed or direction, both being forms of acceleration. The zero-point fluctuations could be the underlying cause of inertia. If that is the case, then we are actually sensing the zero-point energy with every move we make.

The principle of equivalence would require an analogous connection for gravitation. Einstein's general relativity successfully accounts for the motions of freely-falling objects on geodesics (the "shortest" distance between two points in curved spacetime), but does not provide a mechanism for generating a gravitational force for objects when they are forced to deviate from geodesic tracks. It has been found that an object undergoing acceleration or one held fixed in a gravitational field would experience the same kind of asymmetric pattern in the zero-point field giving rise to such a reaction force. The weight you measure on a scale would therefore be due to zero-point energy.

The possibility that electromagnetic zero-point energy may be involved in the production of inertial and gravitational forces opens the possibility that both inertia and gravitation might someday be controlled and manipulated. This could have a profound impact on propulsion and space travel.

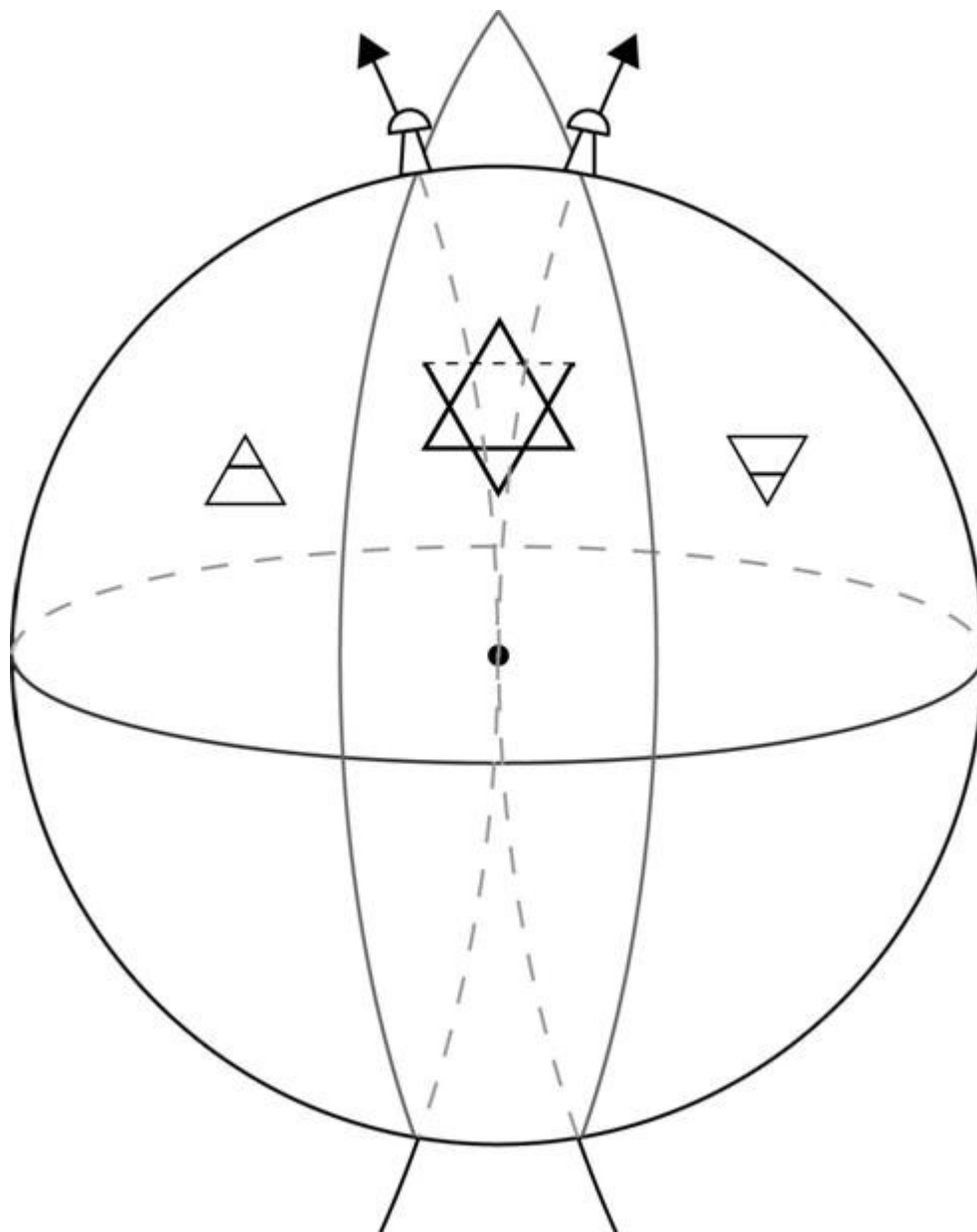


Figure 69: Earth's Zero point and the ascension apparatus

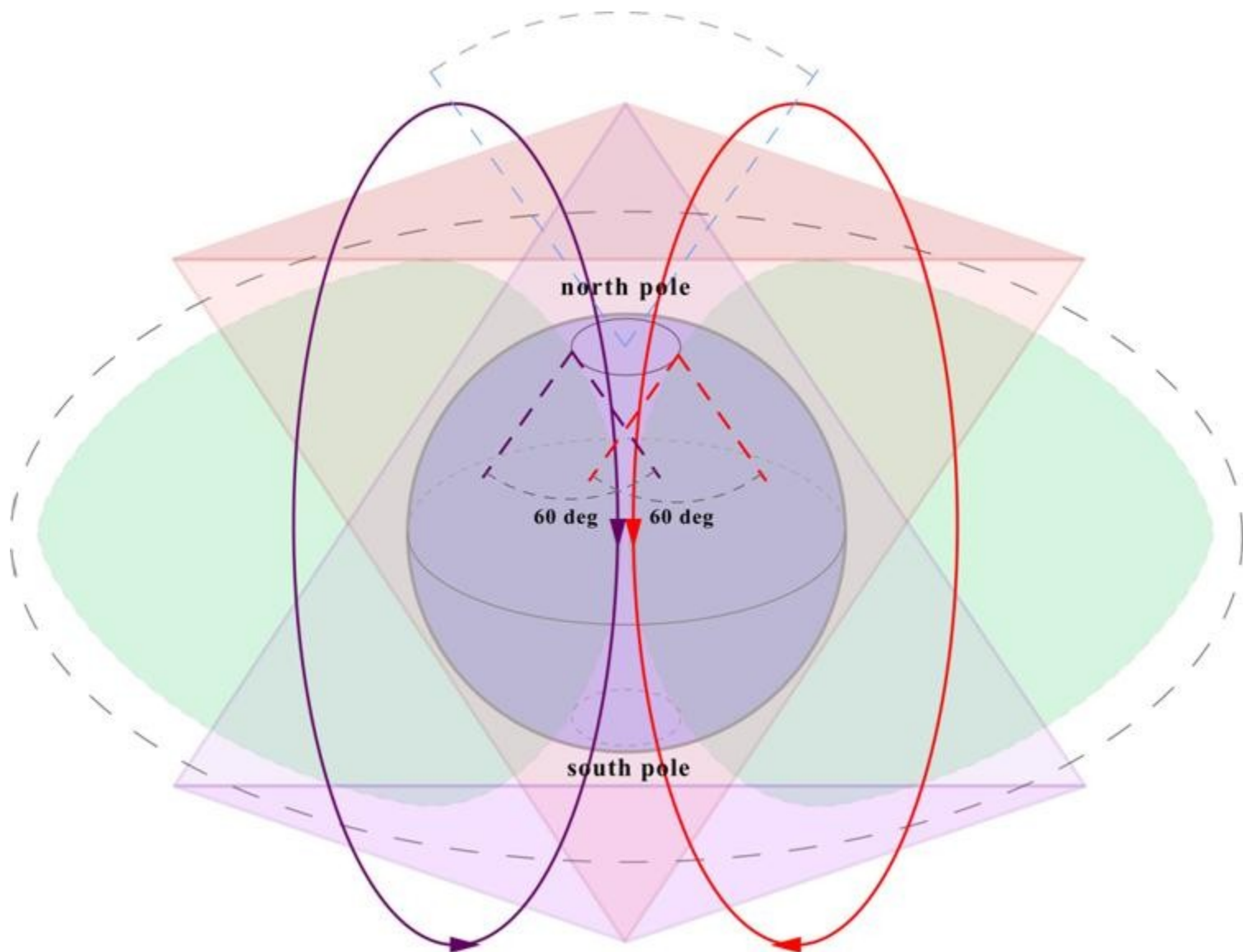


Figure 70: Earth soul as a vortex projection of the zero point

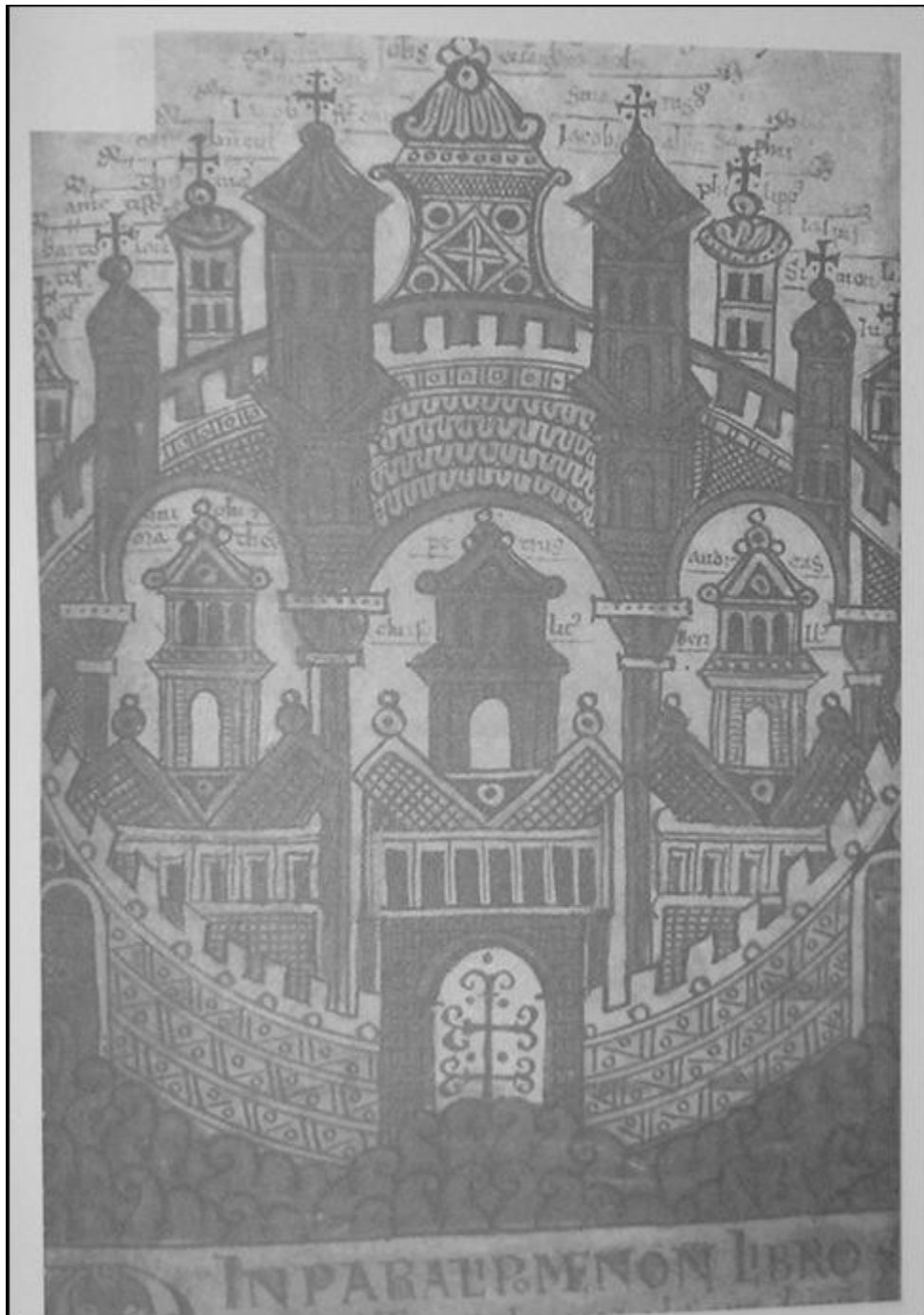


Figure 71: Heavenly Jerusalem, Shambala, Shangri-la as symbols of the Earth's zero point

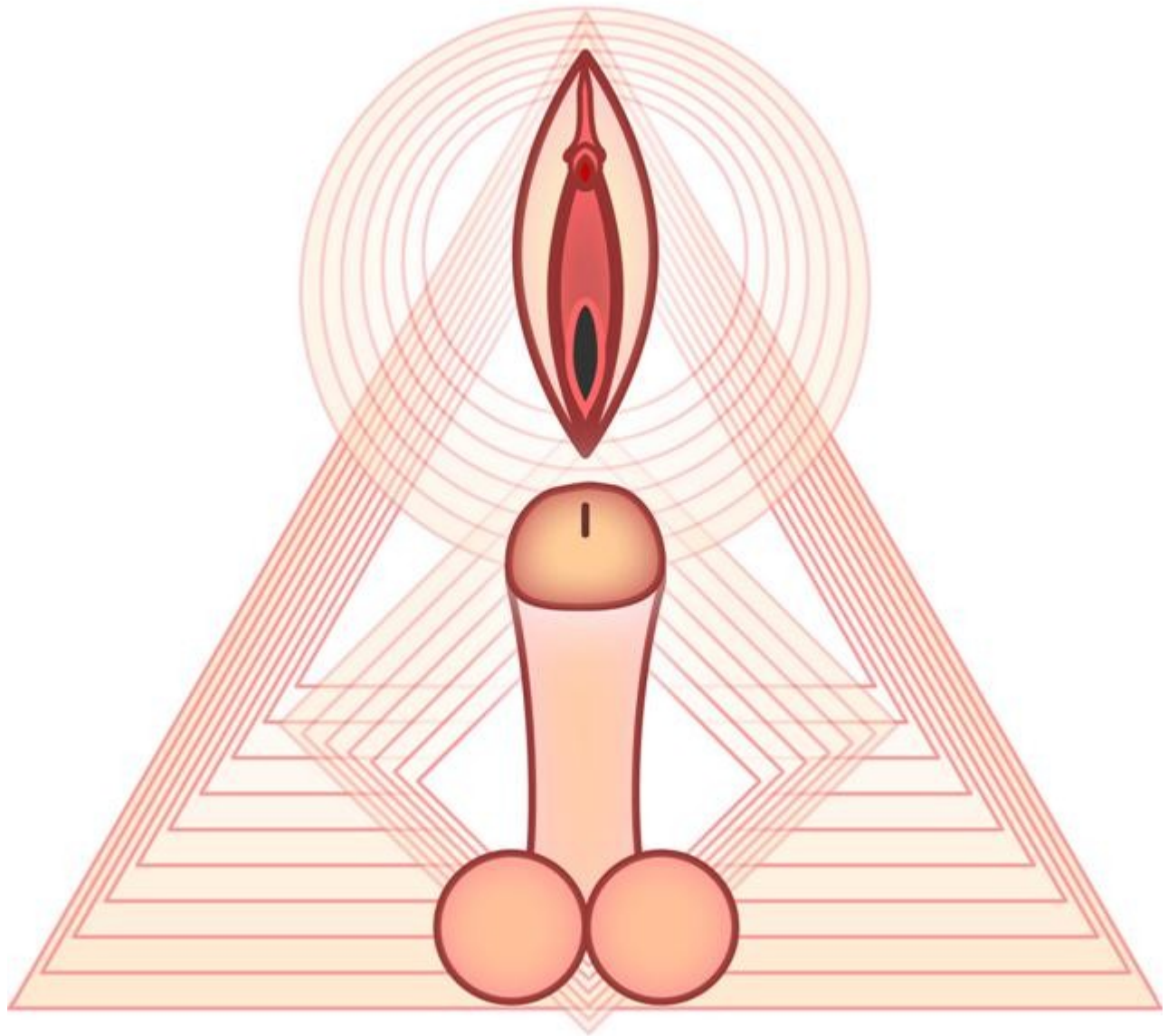


Figure 72: Earth-holon etheric pressure in tantric practice symbolism

Spiritual Sex

The overwhelming nature of sexual passion has caused it to be deified or divinized or alternatively feared as evil and demonic. It may seem odd that the same physiological act can raise us to the heights of spiritual exaltation or plunge us into guilt-ridden misery. The awe-inspiring force of desire and sex has played a role in religion, magic, mysticism, occultism, symbolism, and the whole spectrum of human psychobiological interaction with the transpersonal. Creation myths are often about

divine couplings, and cyclic fertility rites dramatically reenact this original creative act.

In magical theory the opposites which exist at the universal level also exist in us as microcosms or miniature copies of the universe. Each of us as human beings contains all the opposites, symbolized as male and female, sun and moon, conscious and unconscious. In balancing and reconciling these opposites we achieve a higher unity. In marked contrast to the general religious suppression of Eros, tantra does this by glorifying our erotic and sexual nature.

Sexuality is a sacred ritual of union through the sensual and ecstatic celebration of differences. It is the life force. Through the sexual act we seemingly transcend our isolation and physical boundaries, share in a greater reality. We discover, if only momentarily, that the Other seems to become part of oneself. Hence, the erotic language of mystics describing the apprehension of ultimate Unity, the promised reward God offers the righteous.

If this search for the Beloved is the major sexual goal, and if it can be gained only partially and fleetingly with a human partner, then it is quite natural to think of the lasting and blissful union of the soul with God in sexual terms, as many mystics have done. This concept of the soul's union with God as a sexual union is paralleled in the romantic ideal of love with a human partner as an act of worship. The overwhelming nature of desire leads us to experience it as a supernatural force. The soul abides in the heart of the flesh. In the ecstasy of sexual union we rise to the supernatural level, are possessed by a male or female deity, and mingle with the divine. Orgasm corresponds to the soul's ecstasy possessed by God.

Union of Opposites

Tantra is perhaps the oldest form of Eastern alchemy. According to tantric philosophy the whole universe is built up of and pervaded by basic forces which are in intimate and intricate union. These forces, named Shiva and Shakti, are personified as male and female deities. Of this divine pair, Shiva is the subordinate one, for it is the Female Principle that ultimately underlies all manifestation. There is a tantric saying, *"Shiva without Shakti is a corpse."*

The core experience of Tantra is revelation of its sexual secrets. Sexual union symbolizes the quintessence of the elements. Sacred sex reveals eternal truth and transcendence. It is a way of redemption -- union of the personal self with the

transpersonal Self. The Diamond Body is the crystallization or stabilization of the archetype of the universal Self as a permanent part of the individual psyche.

Tantra is a philosophy, a science, an art, and a way of life in which sexual energy is consciously and creatively utilized. The hidden potency of the sexual act is the blueprint or seed of all creativity. When we understand the practical teachings of Tantra, a whole new perspective and experience of life opens. Tantra is a process that fosters the holistic harmonization of the male and female elements of our psychobiological self, ameliorating the war of the sexes. Through rapport and empathy we come to understand the Other. Empathy needs a face! Devotion needs a face.

Psychologically, there is a harmonization of the inner-mate archetypes of *Anima* and *Animus*, soul-figures which function as guides to deeper regions of the psyche. They lead to wholeness, integration, self-actualization. In Jungian psychology a man's inner feminine self is termed *anima* or soul; a woman's masculine component is called *animus* or spirit. Their merging creates a psychological and spiritual androgyny, another expression of wholeness.

Western forms of Tantra include a series of Sex Magick rituals designed to bring the individual to self-realization. The central aim of Western magic is to attain or stabilize the emergence of Knowledge and Conversation of the Holy Guardian Angel, or the daemon, one's true spiritual identity. This implies drawing closer to the consciousness of one's authentic individuality, in contradistinction to the active conscious personality. We can achieve a form of sacred marriage with the inner mate, known in alchemy as the *coniunctio*. This union produces a Magickal Child that symbolizes our potential for realization of the Higher Self, self-actualization.

These western alchemical goals and procedures paralleled Eastern alchemy, with its concern for the elixir of immortality and the extraction of spirit from matter and its liberation through meditation. Chinese alchemy is a mixture of alchemy, kundalini and tantric yoga. Its secret is the great creation of a golden fetus which represents the seed of enlightenment.

The Chinese view is that every individual possesses a central core that is an aspect of the universal Tao. In the Tao, the principles of opposites yin and yang are united. Spirit and soul together make up the personality and vie for supremacy. The goal of Chinese alchemy is to free the spirit from its entanglements with instinctive drives and emotions by providing a place in the human body where the primal spirit may

crystallize and gestate. The beginning of creativity is called prenatal, (undivided yin-yang).

Personal spirit is joined with transpersonal spirit and soul then reunited. The product of this union is called the Golden Flower or the Elixir of Life, literally Golden Ball or Golden Pill, which ensures the survival of the individual after the death of the body. "Circulation of the Light" refers to repetitive cyclical mixing of spirit (psychic) and soul (physical) energies, of the the positive and negative principles, to create the "yellow bud" or "mysterious pearl."

Through a *coniunctio*, inner copulation of positive and negative "crystallization" occurs as the appearance of inner light, white like moonlight. In the next step, the resulting light is reddish yellow. The union of the two lights produces the immortal seed. Golden light within the white light between the eyebrows means primal spirit is forming the immortal fetus and the Elixir of Immortality. The primal spirit emerges from the fetus and leaps into the "great emptiness" through the gate at the top of the head, forming an indestructible Diamond Body. In sex magick, the same is known as the Babe in the Abyss (of the Transcendent Imagination).

Serpent Power

This psychosexual energy is the principle element behind contemporary magic. It is known as kundalini, or the serpent power. Sex is the single strongest intensive, euphoric, even hallucinatory natural emotion alterant available, channeling the sexual energy into a mystical process of self-development. It is the foundation of Tantra.

The spectrum of tantric practices includes not only sexual trance, but physical culture, breath control, superconcentration, mental and spiritual discipline, and the mystic arts. Much like Western magic, tantra employs candles, incense, bells, magical wands and chalices, spells, magic circles or mandalas, bodily postures, occult gestures, symbolical designs, and words of power. These are employed to enhance and bring bodily functions under the control of the will and exert a subtle inner alchemy. There is a hermetic distillation of a quintessence from the bodily fluids which reinvigorates the physical body.

Tantra presupposes a complex system of subtle anatomy and physiology, based on the chakras, or plexes of the etheric body. The seven chakras are situated along an axis that passes from tail-bone to skull. A sympathetic resonance exists between the chakras. By tantric method the kundalini can be made to blaze up and kindle successively higher chakras, streaming up finally to the Crown.

Thus, the way through *bhukti* (pleasure) can lead to *mukti* (redemption). This mystical belief is the tantric secret that sex can be a Way of salvation. The ecstasy of sexual union is a state in which we rise to a virtually supernatural level -- a peak experience. We link ourselves with the great forces of nature and the underlying rhythms of the Universe -- and experience atonement.

The meaning of sexuality is that it facilitates the birth of self-awareness.

Self-questioning

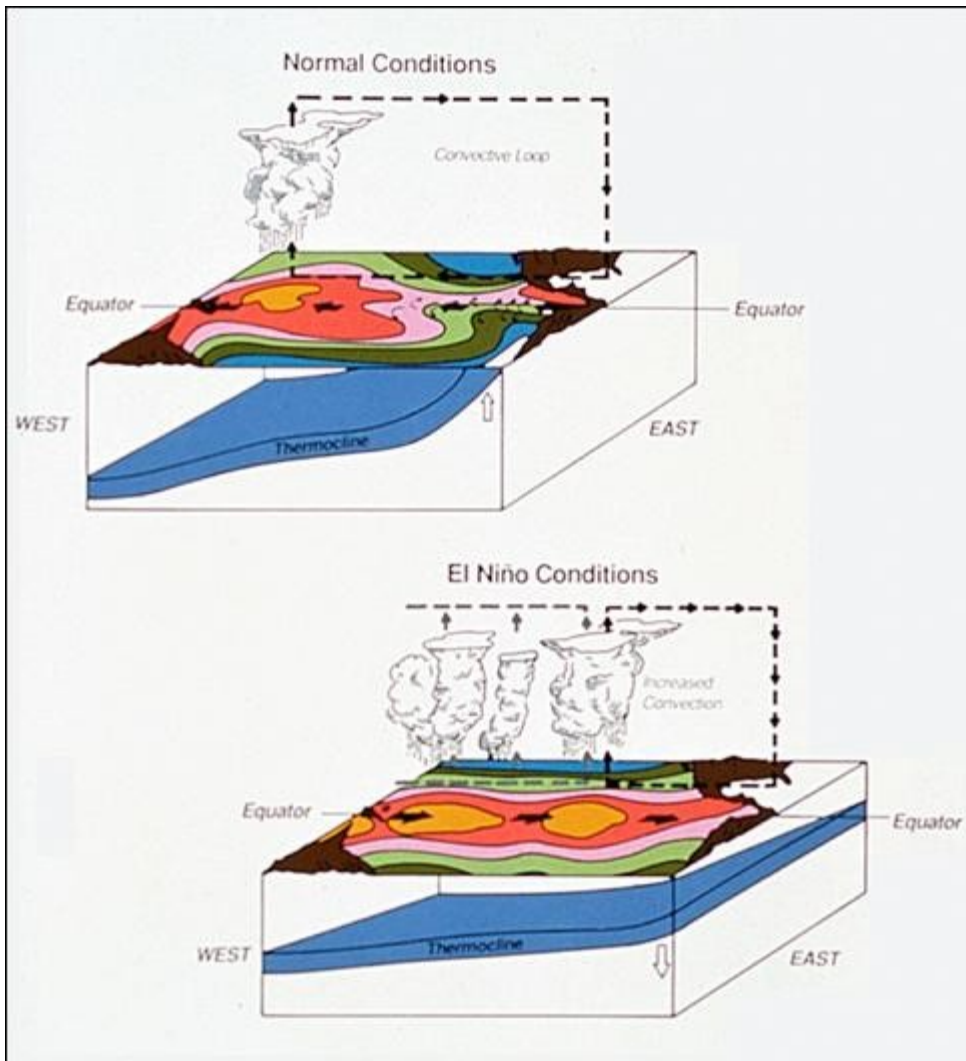
When life is good we take it for granted. But sorrow dispels our illusions. Sorrow can make us do many things. In my view the main purpose of sorrow is to make us question why things are as they are. We need to question our life, our beliefs, our values. We can escape this questioning so long as we can blame someone for our failures. When we can no longer blame someone then we can escape this questioning by relying on our social supports, especially by joining groups of fellow sufferers. When this ceases to be rewarding, or becomes too stressful, then we can escape this questioning by immersing oneself in religion. But even religion can fail us. We can still escape this questioning so long as we can fall back on sexual activity (primarily that of sexual intercourse, and secondarily that of masturbation) when all other consolations fail. Sexuality is the last consolation. When even sexual activity itself becomes the source of obvious sorrow then, for the idealist, self-questioning can no longer be avoided. It will have to be faced, sooner or later.

This pattern of self-questioning is the way that the sublimation of sexuality leads to an holistic ethics (rather than to a puritan one). In the attempt to escape from the sorrows of everyday life, the two attractions that remain after social support is exhausted are the consolations of sexual pleasure or the consolations of religion. Sexual desire is much greater than the attractions of religion since sexual desire is powerful enough and compulsive enough to override the sense of individuality. The ability of some features of religion to override the sense of individuality is only derivative: this religious effect just builds on what was first achieved through sexuality.

If sexual desire did not exist, then we would not need to develop self-awareness because our individuality would be strong enough and adequately self-sufficient for us ; we would then regard social problems as being trivial and would not concern ourselves with them. Virtue and social concern would be unlikely to arise if we were just minds without a sexual body. The sexual body is only an evolutionary expedient. Once virtue and integrity have arisen and been stabilised by practise then we can evolve into bodiless minds and dance in the sexless infinity between the stars.

KUNDALINI ENERGY is typically described as a powerful energy source lying dormant in the form of a coiled serpent at the base of the human spine. When freed it reputedly has the capacity to effect great physical healings. Christina and Stanislov Grof, New Age authors of the book "The Stormy Search for the Self," describe how the awakening of Kundalini energy can be triggered by an advanced spiritual teacher or guru. And how the awakening can bring up memories of past psychological traumas. The Grofs state that "individuals involved in this process might find it difficult to control their behavior; during power rushes of Kundalini energy, they often emit various involuntary sounds, and their bodies move in strange and unexpected patterns. Among the most common manifestations . . . are unmotivated and unnatural laughter or crying, talking tongues . . . and imitating a variety of animal sounds and movements" (p. 78-79). The Grofs state that "careful study of the manifestations of Kundalini awakening confirm that this process, although sometimes very intense and shattering, is essentially healing" (citing Warren Smith by permission in an article for Spiritual Counterfeits Project entitled "HOLY LAUGHTER or Strong Delusion" (Fall, 1994, Vol. 19.2), p. 14).

KUNDALINI - (Sanskrit kund, "to burn"; kunda, "to coil or to spiral") a concentrated field of intelligent, cosmic invisible energy absolutely vital to life; beginning in the base of the spine as a man or woman begins to evolve in their first incarnation; fed by the chakras along the spine and by the cosmic energy entering through the feet from the earth; as wisdom is earned in each incarnation, this electromagnetic, ultrapotent energy moves slowly upward through the spine; it is directed by the speed of the soul mind as the soul-mind meets the requirements of each chakra, according to the needs and thinking of the individual; eventually this energy is unspiralled through the medulla oblongata, pituitary gland, pineal gland and through the crown chakra to unite with the silver cord; one will ascend to the higher realms to finish evolutionary cycle; kundalini is feminine polarity in nature. Sim. Coiled Serpent, Cosmic Fire, Chi, Bioplasma, Holy Spirit [cf. Appendix 5 Kundalini] (June G. Beltzer, Ph.D., The Donning International Encyclopedic Psychic Dictionary, "Kundalini," p. 343).



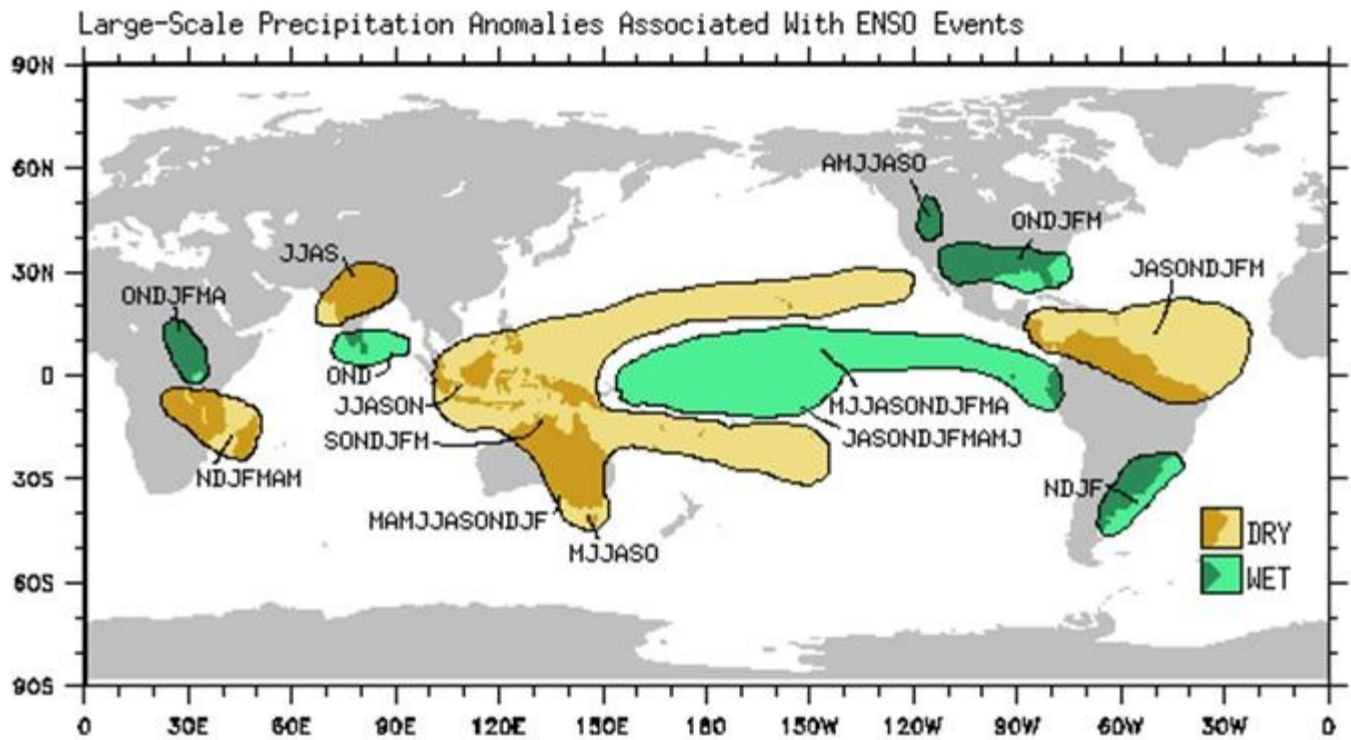


Figure 73: El Nino/Nina as the first sign of Rapture in time/space fabric

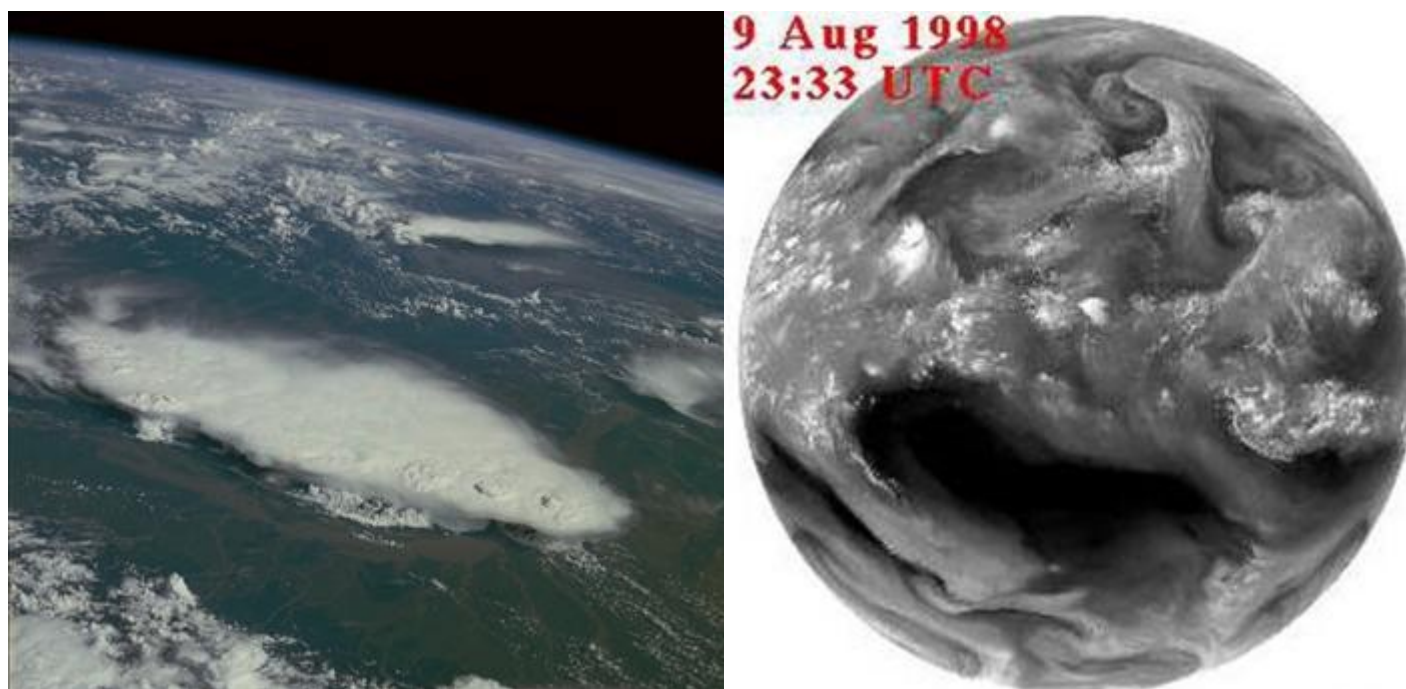
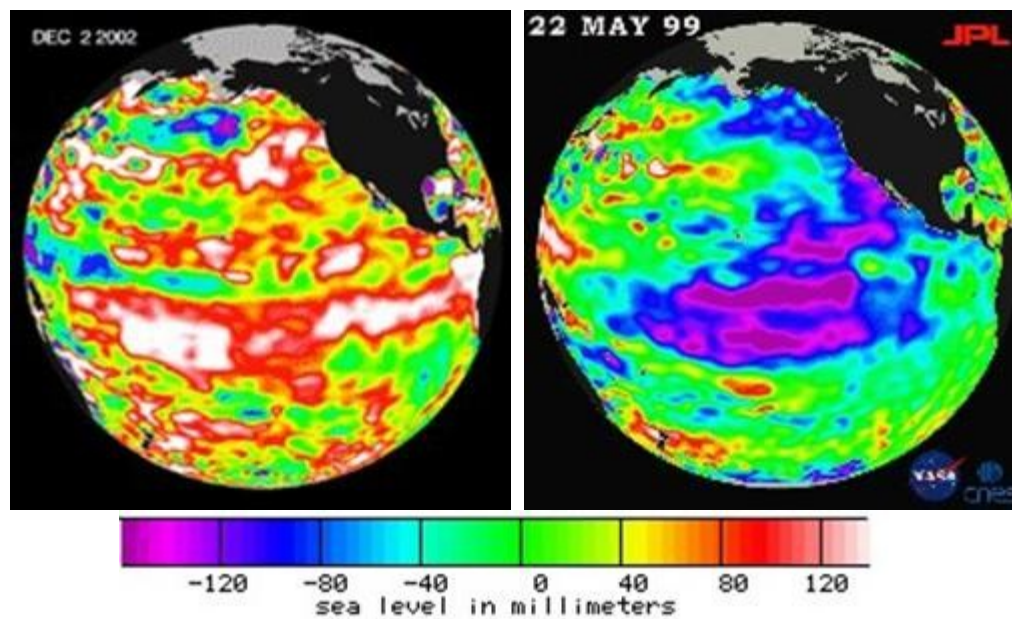


Figure 74: Satellite view of the emerging astral saturation – El Nino/Nina



Figure 75: Thule society dagger/cross memorabilia

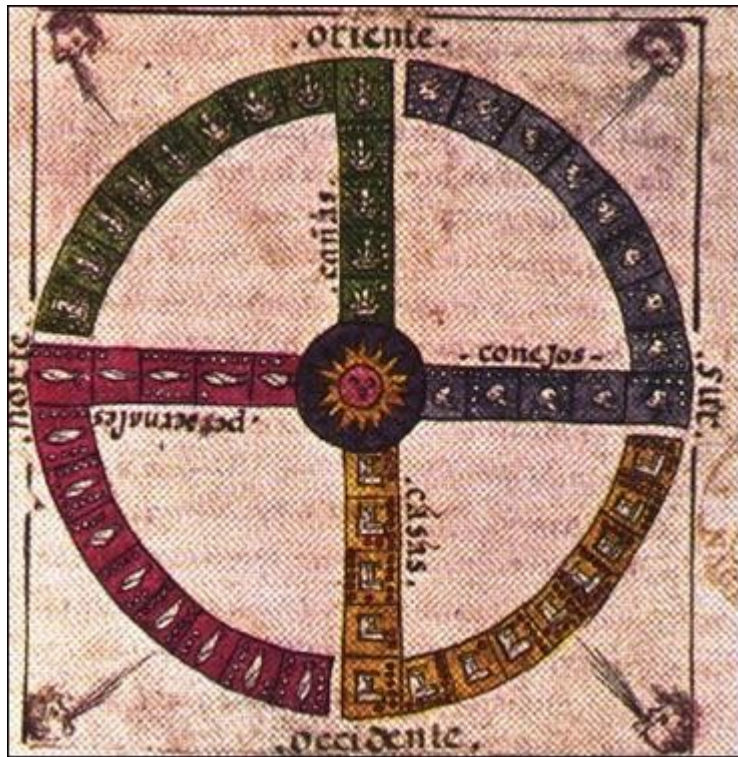


Figure 76: Aztec swastika symbol



Figure 77: Mayan *Hunab Ku* - galactic centre

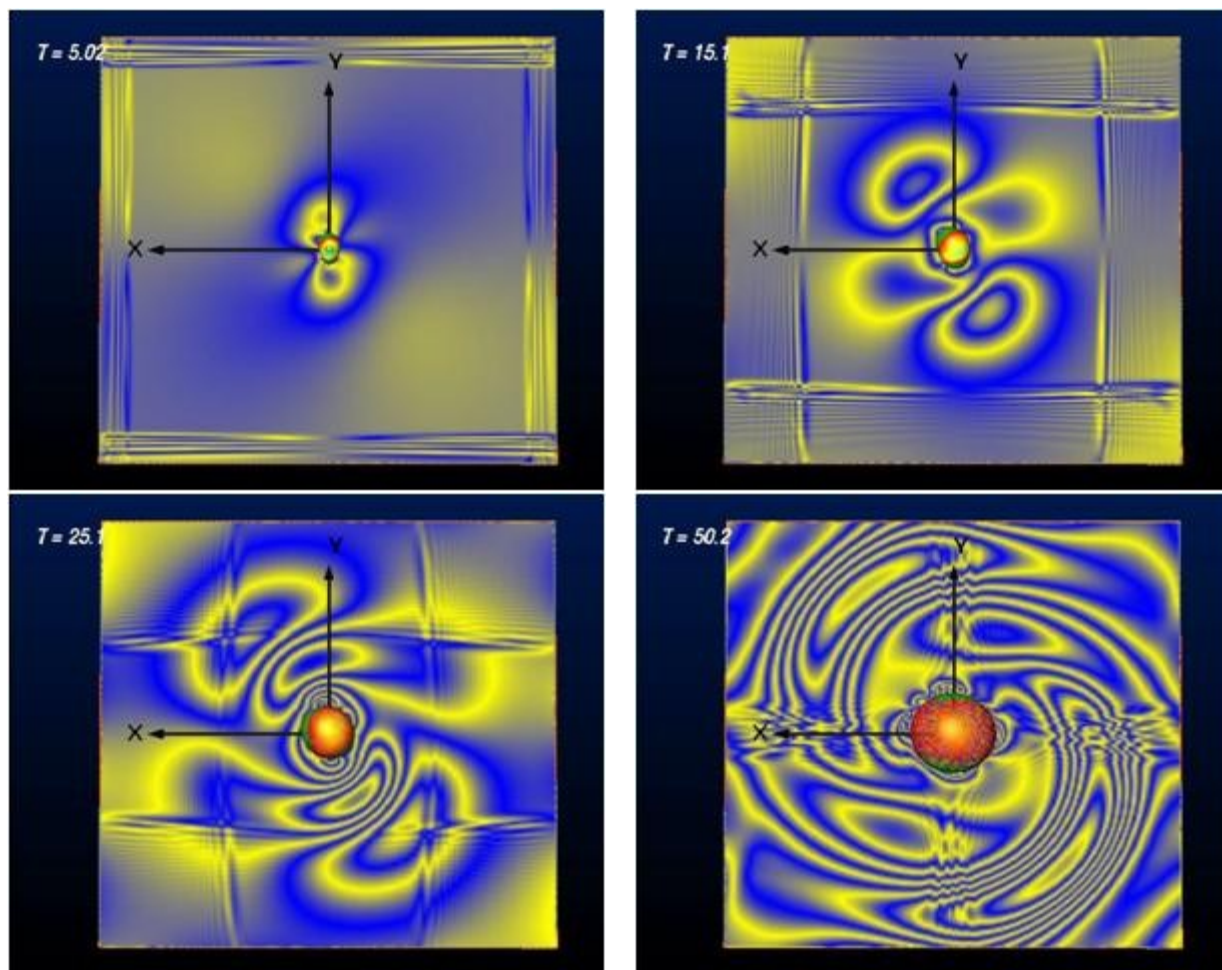


Figure 78: Revolution of the neutron star plasma field

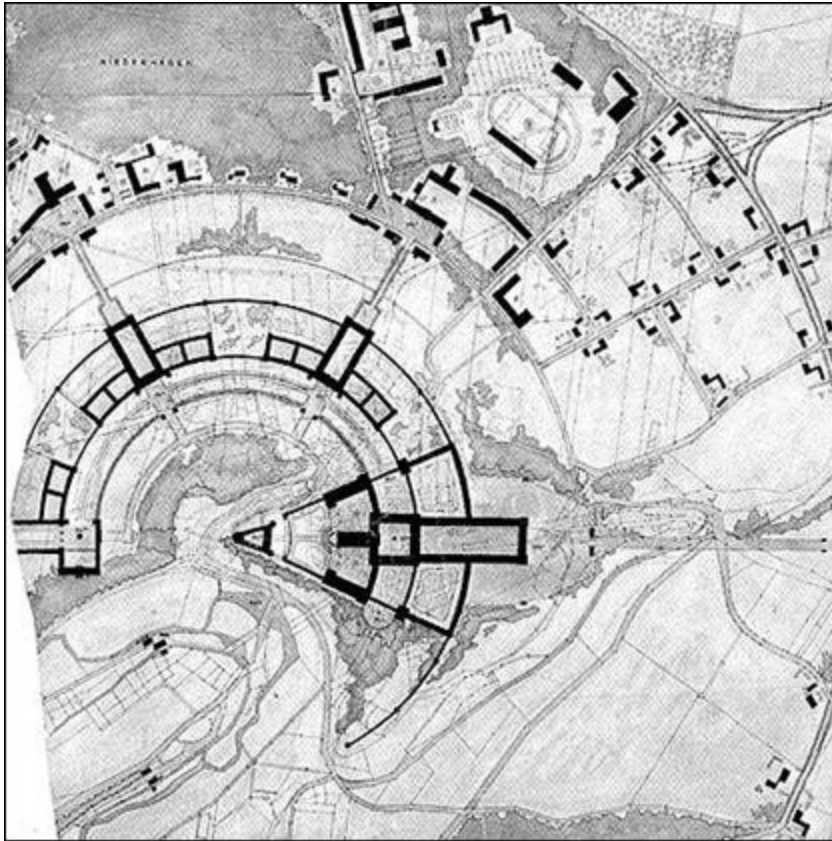


Figure 79: Ground level plan of the Wewelsburg castle



Figure 80: Aerial view of the Wewelsburg castle (SS HQ during WWII)

The Nazi dagger clearly visible from an aerial viewpoint, Earth and the proton/electron drift in 60 degrees angle outflow from the central tower.



Figure 81: Inner circle of mankind and symbolism of the black sun

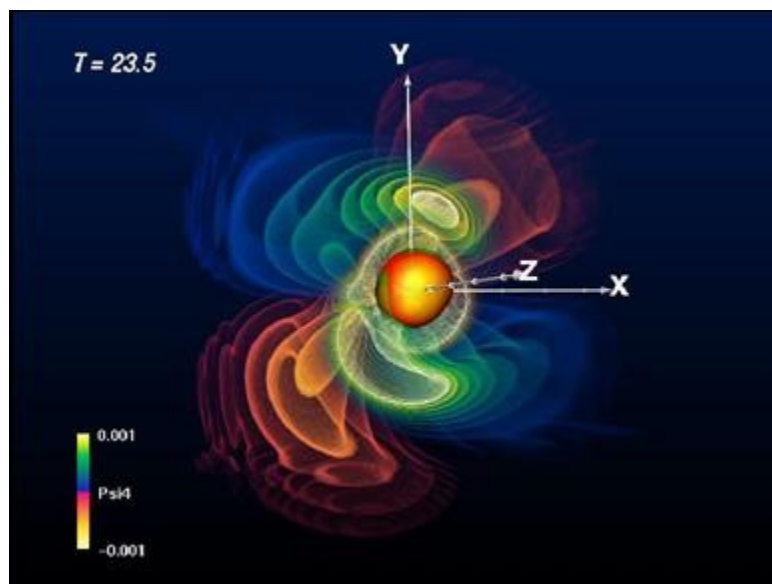


Figure 82: Black hole rotation and the symbolism of swastika

Black holes, negative polarity

Black holes are theorized by AVT (Atomic Vortex Theorem) to be formed when a star/white hole loses its intelligence and finally reverses its greater polarity bias. So we see stars never die, but lose intelligence and after expressing with a positive polarity to our time-space dimension, reverse this energy polarity and take energy/mass out of time/space.

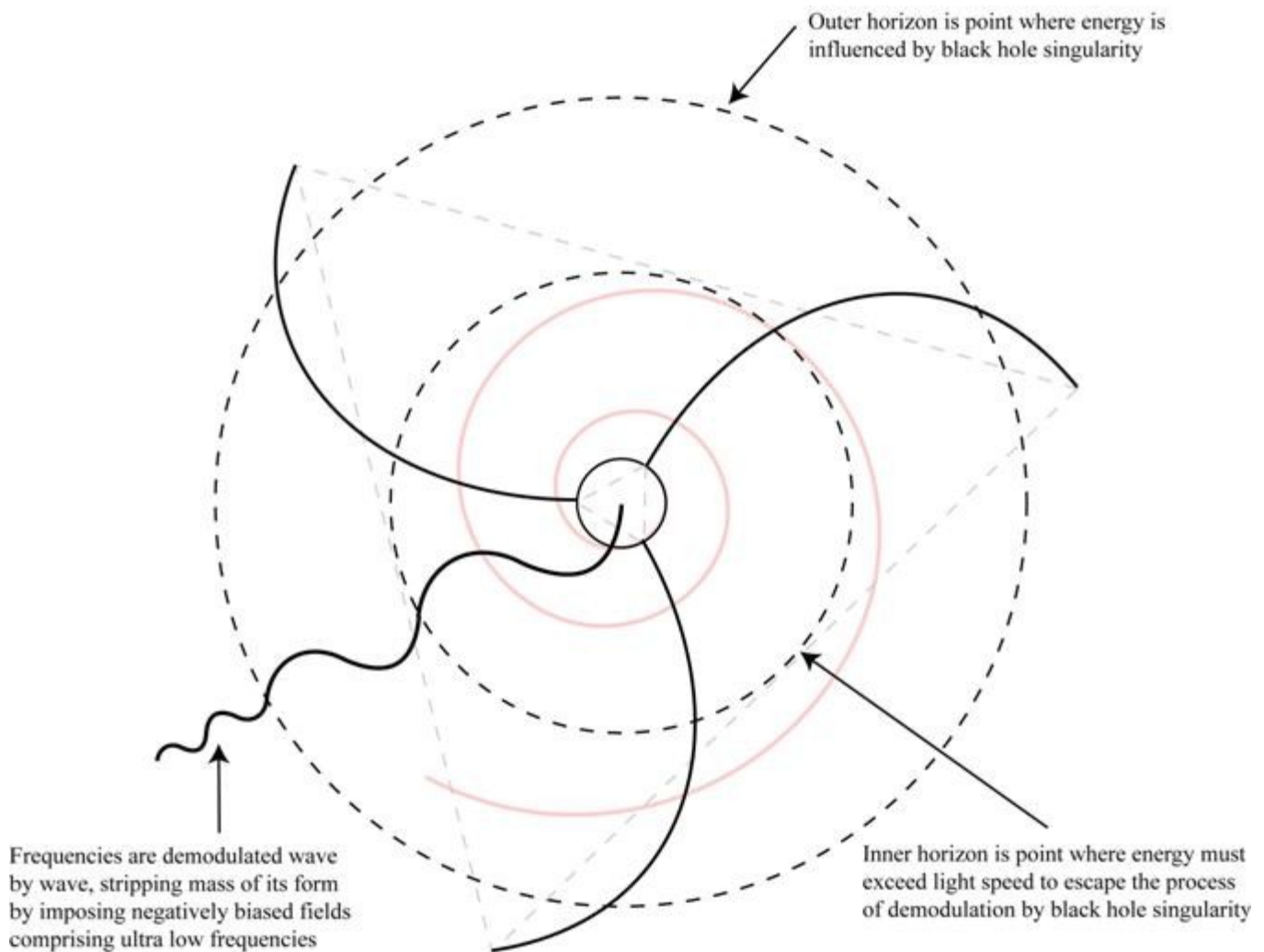


Figure 83: Black hole singularity demodulation - AVT

The solar parallax and harmonics drawing energy into time-space from a higher dimension are after sufficient demodulation now reversed in polarity and this forms a black hole, a magnetic parallax with a harmonic affiliation to a lower spectrum. Let us again apply AVT principles, but now to black holes:

- 1.0. Black holes energy is indestructible and of infinite potential.
- 2.0. Black holes express in a cyclic, vortex pattern.
- 3.0. Black holes oscillate at specific frequencies.
- 4.0. Each Black hole is unique.
- 5.0. Black holes regenerate themselves. (6)
- 6.0. Black holes transfer energy via harmonic affiliation.
- 7.0. Black holes are linked to all other energy.

A black hole is formed by magnetic parallaxes between our time-space dimension and the immediate lower subset of transfinite energy expressing with frequencies and subharmonic frequencies which are too low to exist in time-space. It is a demodulating vortex emanating around a singularity. It imposes super low frequency wave forms upon all surrounding energy. It's harmonic affiliation with time-space is only temporary as it loses its bias after assimilating so much of the surrounding energy. Like a whirlpool it then loses form and dissipates.

We see clearly that black holes are much more than the theorized singularities with an event horizon, angular momentum, mass and charge. Black holes are likely the negative polarity of stars/white holes and form when a star/ white hole reverses its polarity from positive to negative. The evolution of a star becomes much more complex as we see it is truly a white hole/black hole parallax in a cycle of reversal that lasts throughout time. AVT postulates that what we believe is the evolution of a star is in reality the slow reversal of polarity of the singularity which manifests as a white hole:

- 1.0. A small white hole emerges in time-space due to certain harmonic juxtapositions allowing compatible magnetics to transmit energy from outside the time/space spectrum. ($E > c$ and $E \leq c$)
- 2.0. The white hole grows larger and brighter reaching a peak of energy transfer from outside time-space.
 - 2.1. Large vortices of energy flow out during "birth" phase and regenerate to form planets as they revolve in the time-space vortex caused by the white hole.
- 3.0. White holes begin to lose their intelligence after a mathematical amount of energy emission.
- 4.0. The white hole grows darker, redder and expands in size. This size expansion is caused by:
 - 4.1. The progressively lower frequency spectrum of the wave forms emerging in time-space.
 - 4.2. These wave forms become visible at a point further away from the singularity.
 - 4.3. The appearance of the singularity has expanded and darkened.
 - 4.4. Hydrogen isotopes stop forming as the frequency lowers.
- 5.0. The color change is the result of energy now expressing at a lower wavelength.

6.0. The white hole reaches a limit to its positive demodulation and begins to demodulate negatively as it becomes harmonically attenuated to lower dimensions.

7.0. The white hole singularity now is demodulating time-space energy and attracts like frequencies.

7.1. All planets within solar system (event horizon) are swallowed and demodulated.

7.2. The white hole is now a black hole.

8.0. An event horizon (field) is formed by the singularity and slowly demodulates mass/energy.

9.0. All mass/energy is drawn into singularity and lowered in frequency by imposing powerful ultra low frequency wave forms. (6)

10.0. This harmonic pull and demodulation continues, slowly reversing polarity again.

11.0. Eventually the singularity reverses polarity again and a "new" white hole appears.

11.1. White hole appearance and disappearance are observed as supernovas.

11.2. White hole reappearance may not be in the same location of time-space but will appear where focal vortices are harmonically compatible.

12.0. This cycle perpetuates infinitely, each time in a unique manner.

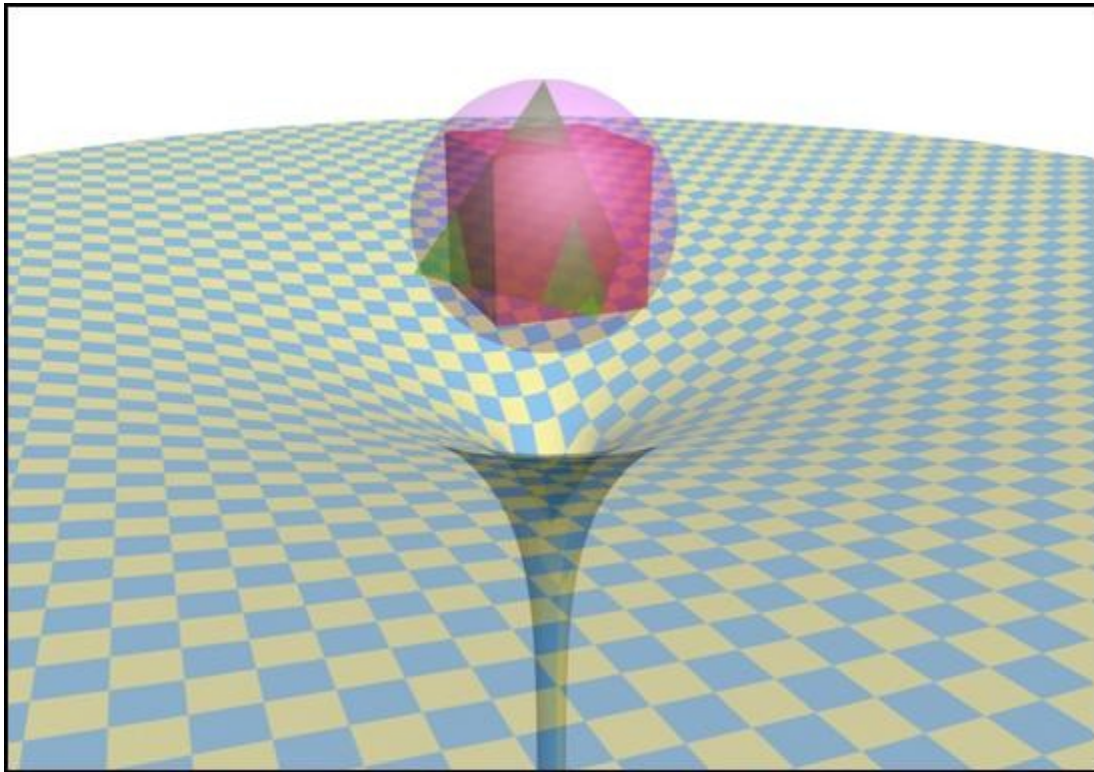


Figure 84: Approach to black hole singularity and symbolism of esoteric initiation

A wormhole is a temporary zero fluctuation of the space-time vacuum. Where the radiation void exists, a wormhole is opened-up, a tunnel through hyperspace. Where there is a zero-fluctuation, there is also gravity because the radiation void is gravity by definition. The absence of radiation pressure (negative radiation pressure) creates a wormhole. A wormhole is temporary gravity without the presence of any matter.

General relativity is incomplete and somewhat conservative in its treatment of wormholes. These phenomena are vastly more common than is generally realized. All matter of a significant size has, at its center of mass, a wormhole large enough to send incoming gravitational radiation into hyperspace.

Time travel, it is claimed, is possible if a wormhole can be held-open. It is also claimed that a wormhole can be held-open by what are called "exotic materials". In the viewpoint presented by this text, such materials should consist of materials (or conditions) that cancel-out long-wavelength radiation. This could be radiation that is exactly out-of-phase with ordinary radiation generating a void.

For example, in the (rather famous) two-slit experiment with visible light, the wave fronts can interfere destructively with each other (as they pass through the slits) yielding blackness. Thus, light + light = blackness. The two waves, hence, must be exactly out-of-phase with each other in order to cancel-out in this fashion. This is exactly what is required for a wormhole to be held-open. In the context of particle interactions, this can be viewed as a particle interacting with its opposite, for example, a photon with a photon hole (or matter with antimatter) yielding a wormhole. See the "Space-Grid" text at the link below for further details.

Background radiation must be precisely canceled-out by other out-of-phase radiation that can be purposefully introduced (by any time and space travelers). At the place where these two types of radiation might interact, the void is increased because cancellation (and close to zero radiation pressure at this point) causes space-time to bend (or warp) into a tunnel through hyperspace--even when there is no matter present!

It has been proposed by others that such "exotic materials" might consist of vacuum fluctuations of the electromagnetic field. These are viewed as a promising form of exotic materials that can hold-open a wormhole. Another possibility is that time-reversed radiation could somehow be produced, which also might cancel-out ordinary long-wavelength radiation. Perhaps, out-of-phase radiation is time-reversed radiation, ordinary radiation traveling backward-in-time.

Indeed, this is somewhat reminiscent of R. P. Feynman's (and others) theory of positrons (positively charged electrons) being electrons traveling backward-in-time. At the quantum level, the laws of physics are time-symmetric and time-travel is commonplace. Thus, that photons can travel backward-in-time, should also not be surprising.

Hence, in the regions where cancellation of light with light occurs (light + light = blackness), the two slit experiment might be explained as photons being out-of-phase and canceling ordinary quanta, yielding blackness.

The author is in general agreement with the finding that exotic materials can hold open a wormhole, if the proposed fluctuations yield a negative radiation pressure effect i.e., the author's picture of gravity. If vacuum fluctuations do generate negative radiation pressure without the presence of matter, a wormhole to another place and time in the Universe might be possible.

Another possibility for time-travel (and perhaps, this is a far better method than that above!) via a wormhole, could be a shell the size of a small planet made of neutron-star matter or some other highly-dense materials. The density of the shell of neutron star matter would have the effect of blocking or shielding the incoming radiation from passing into the open-spaces within the shell. This shielding creates an artificial wormhole at the shell's center of mass, which is an open-space at the center of the shell.

Hence, a permanent wormhole is created where there is no matter at all. Perhaps, this wormhole might be large enough to for a body or spaceship to enter. If tidal forces are limited by the quantum gravity proposal stated above, perhaps, they will not tear-apart a space-traveler who enters the permanently-open wormhole. This idea has its own text; See the "Space Portal" text at the link below.

In the author's work on relativity and inertia, it appears possible that a wormhole is opened-up when an object is actually at the speed of light. The forward motion of the object, therefore, accumulates the exotic materials mentioned above. The object falls-into the void at its leading edge and into the wormhole. This is equivalent to the accumulation of exotic materials that can cancel-out long-wavelength background radiation. A wormhole, hence, can be created also by an object's forward motion. Since an ordinary object can never reach the speed of light (according to Einstein), falling into a wormhole by one's forward motion can never actually happen in practice. See inertia and relativity text link below for further details.

Wormholes might also be at the core of all matter (as in the shell example above). This viewpoint gives the incoming radiation that makes-up the quantum gravitational field (described in the gravity text) a place to go. The incoming radiation, hence, is attracted to the radiation void and "falls" into a higher dimensional hyperspace--a wormhole. If this were true, all matter contains a wormhole within, at the center of mass. The wormhole, perhaps, is the center of mass--a singularity of sorts. Perhaps, this is the reason that Newton found (and proved) that objects behave as if all of their mass is concentrated at their centers. This was no coincidence.

On the downside, much of the author's work suggests that five dimensional hyperspace is not a very appealing place to travel through. It is the realm (the author believes) of the Higgs fields, the storehouses for matter and radiation. Light, sparks, flames etc. come to our dimensions from the Higgs fields in hyperspace. Hence, if a time-traveler wanted to travel through a wormhole through these hyperspace dimensions, he/she had better have on a fire-protected suit. The fifth dimension is very hot!

Since the laws of physics are symmetric with respect to time, where there is a black hole, there must be also a white hole. Indeed, in particular solutions of general relativity, white holes are even predicted. If a black hole is an object that things fall into but not out of, a white hole is an object that things can come out of but not fall into. Hence, one might be able to jump into a black hole and come out of a white hole (Hawking, 1993). If, as stated above, there are physical limits to the tidal forces of a black hole, one might survive such a trip with out being stretched-out to infinity. Thus, quantum gravity perhaps allows the possibility of the wormhole and white hole schemes for time and space travel.

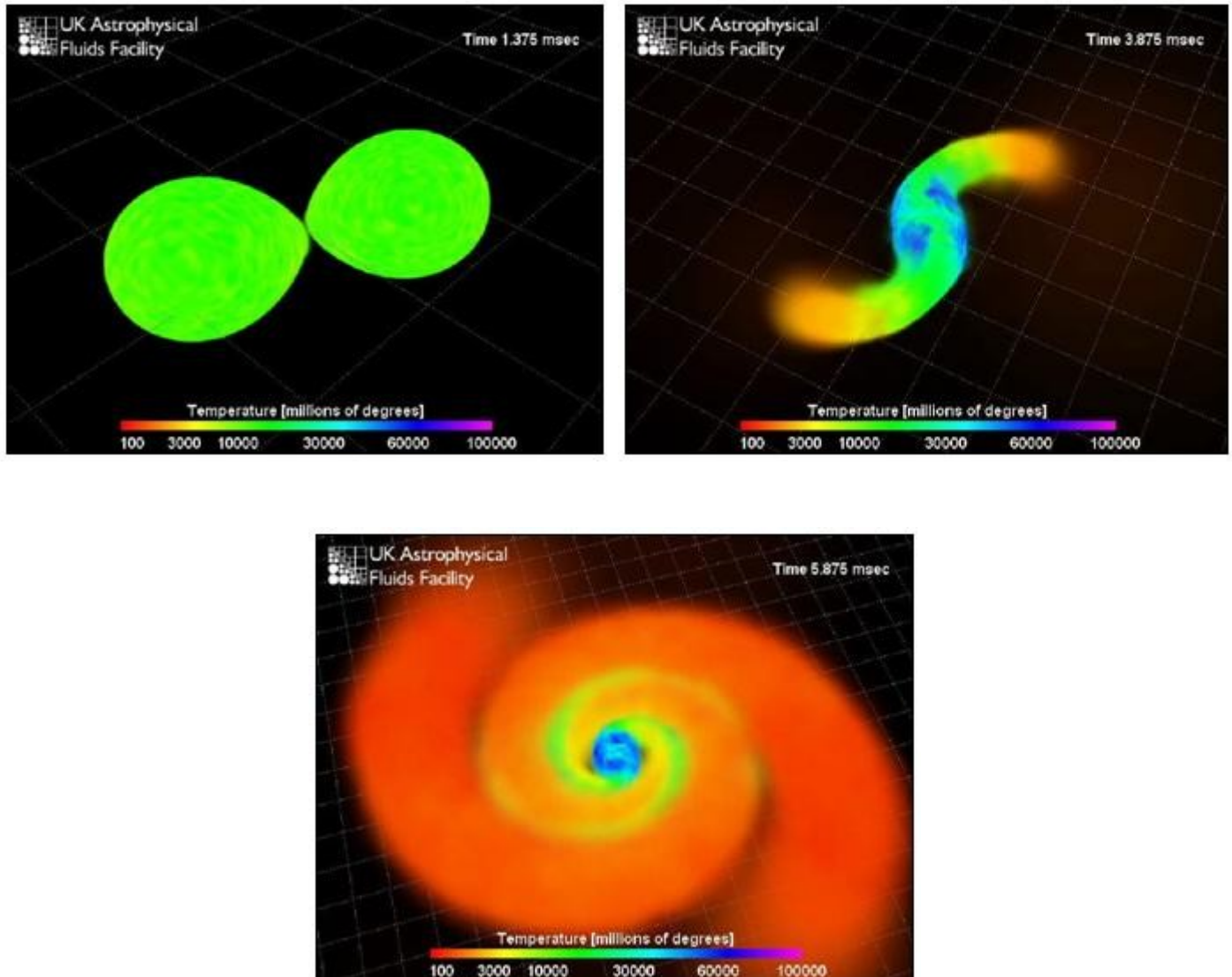


Figure 85: Converging plasma instabilities and the creation of a gravitational collapse

Science fiction writers, to avoid undue delays in the story's plot-line, need a way of beating the speed-of-light speed limit of the universe. Most readers of this magazine are familiar with the gimmicks that have been used for faster-than light travel: warp drives, detours through hyperspace, matter-to-tachyon conversion, trans-spatial jumps, and dives past the singularity of a rotating black hole. But perhaps the faster-than light mechanism which has the best credentials in orthodox physics is the wormhole, also known as a Schwarzschild wormhole or an Einstein-Rosen bridge.

The wormhole idea comes from Einstein's theory of general relativity itself using "Schwarzschild geometry", a way of inscribing a space-time coordinate system on the highly curved space in the vicinity of a black hole. A wormhole is a funnel-shaped tunnel that can connect one complete universe with another or can connect two separated regions of the same universe. In the latter case it is a short path connecting two distant locations in space. Thus it is the SF writer's dream, a spatial shortcut that a space traveler might use to bypass the speed-of-light barrier and travel almost instantaneously from one place to another within our universe.

However, there is a basic problem with wormholes as a transport system. Wormholes, as described by the equations of general relativity, are dismayingly unstable. In fact, any wormhole connection that happens to form between two points in space should pinch closed again so rapidly that neither material objects nor light-beam messages can pass across the wormhole "bridge" during its brief existence. Thus a wormhole, at least in its pristine form, is unsuitable for the instantaneous space transport that SF writers may have in mind.

Most physicists will find this result very satisfying, for it avoids a simultaneity paradox. Einstein's special theory of relativity treats space-time in a very even-handed and symmetric way. It requires a complete equivalence of "inertial reference frames", space-time coordinate systems moving through space with any constant speed (including zero). These must be equivalent by any internal measurement that would single out one such frame as special. For example, no measurements made inside a spaceship traveling at near light-speed can show different results from similar measurements made when the ship was at rest in space. In special relativity "at rest in space" is a meaningless concept, since that condition is undetectable.

Thus, a semi-permanent wormhole would present a problem for special relativity not only because it would breach the light-speed barrier but also because the reference-frame symmetry would be broken. If a wormhole connection between separated regions of space existed only long enough to permit a message to be sent, it would seem that a reference-frame test could be made that would single out one reference frame as "preferred". Absolute space would be detected and defined.

The satisfying instability of wormholes has now been called into question. Last Fall a paper by Michael Morris, Kip Thorne, and Ulvi Yurtsever was published in the conservative and prestigious journal *Physical Review Letters* which changes all this. The authors describe how an "advanced civilization" might: (a) create a large wormhole; (b) stabilize it to prevent its re-collapse; and (c) convert it to a time machine, a device for traveling or at least communicating back and forth in time. This remarkable paper, which borders on science fiction in its approach, has a very serious purpose. There is presently no well-established theory that can accommodate both quantum mechanics and the physics of strong gravitational fields within the same mathematical framework. The paper of Morris, Thorne, and Yurtsever is a vehicle for guessing, in a rather unorthodox way, what restrictions a proper theory of quantum gravity might place on the physics of wormholes. The authors demonstrate that general relativity contains within its framework mechanisms that appear to permit both faster-than-light travel and time travel. If these physical calamities are to be averted, the authors argue, it can only be done through a proper theory of quantum gravity.

To devotees of science fiction, however, these aren't calamities at all but delightful prospects. So let's discuss how Morris, Thorne, and Yurtsever propose to create a stable wormhole, with the idea that someday we may be able to build one (or at least write a good story about it). Empty space, when examined with quantum theory on a sufficiently small distance scale, is not empty at all. Even at nuclear dimensions (10^{-13} cm) empty space is filled with particle-antiparticle pairs that are continually flashing into a brief existence, bankrolled on the credit of borrowed mass-energy, only to wink out of existence again as the law of conservation of energy reasserts itself. If the length-scale is contracted to a size appropriate to quantum gravity (10^{-33} cm) this quantum fireworks intensifies to a "quantum foam" of violent fluctuations in the topology and geometry of space itself. Quantum black holes form and vanish in a span of time of 10^{-23} seconds; highly curved and convoluted regions of space in an physically allowed configuration have a similarly brief existence. In this environment Morris, Thorne, and Yurtsever speculate, it may be possible for a civilization considerably more advanced than ours, by "pulling a wormhole out of the quantum foam and enlarging it to classical size" to create a connection between two nearby points in space. This would use the well-known quantum mechanical process called "tunneling", a jump from one allowed energy state to another across a barrier of intermediate states that are forbidden by energy conservation.

To stabilize the wormhole pulled from the quantum foam, preventing its immediate recollapse, Morris, Thorne, and Yurtsever propose to use an electric field of such enormous strength that it creates enough energy in the mouth of the wormhole to force it to remain open. They suggest that this might be accomplished by placing a pair of spheres with equal electric charges at the two spatial entrances of the wormhole. The spheres would be held in place by a delicate balance, the force of their gravitational attraction just offsetting the force of their electrical repulsion. Such a system might be very small, an atom-scale opening permitting the passage of only a few photons at a time, or it might be large enough to pass a large vehicle.

Having produced this stabilized wormhole the engineering can begin. The size of the connection can be enlarged or contracted depending on energy considerations. The two portal ends of the wormhole connection can be separated from each other. For example, a portal placed aboard a space ship might be carried to some location many light years away. Such a trip might require a long time, but during the trip and afterwards instantaneous communication and transport through the wormhole would be available. The ship could even be supplied with fuel and provisions through the portal. A similar scenario has already been described in Poul Anderson's *The Enemy Stars*, in which starships were required to travel at sub-light speeds, but they carried onboard matter transmitters that permitted instantaneous transmission of crew and supplies from Earth.

This brings us to the last point of the Morris, Thorne, and Yurtsever paper, the construction of a time machine. Suppose that initially a wormhole establishes a connection between two spatial points **A** and **B** that have no motion with respect to each other and are simultaneous in time. By "simultaneous", a slippery concept in relativity, we mean that an observer at **A** who determines a clock reading at **B** would get the same reading via normal space (by light beam signals corrected for transit time, for example) as he would through the wormhole.

Now suppose, in the spirit of the Twin Paradox of special relativity, that portal **B** is placed aboard a space ship while portal **A** remains on Earth. The ship carrying **B**, say, accelerates rapidly to 86.6% of light speed and travels a distance of one light-year, then reverses its course and returns to Earth at the same speed. On its arrival portals **A** and **B** are placed near one another. At 86.6% of the velocity of light any clock aboard the ship will run at just half the speed of a similar clock on Earth due to relativistic time dilation. Therefore at the end of the trip the ship's clock will be one year slow, as compared to an identical clock that remained on Earth. And, as Morris, Thorne, and Yurtsever point out, portal **B** will also be one year slow as compared with portal **A**. Now a message sent through **B** to **A** will emerge one year in the future of **B**, and a message sent through **A** to **B** will emerge one year in the past of **A**! Similarly a traveler making the same trips through the wormhole will travel one year into the future or the past. The wormhole connection through space has been transformed to a connection through time, a wormhole time machine.

Does this device, embodying faster-than-light space travel as well as time travel, demonstrate that special relativity is wrong? Does it show that Einstein's speed limit had been defeated? Not at all. The restrictions usually associated with special relativity implicitly assume that no time travel is possible. Clearly one could travel, in effect, at an infinite velocity by traveling from one place to another at some sub-light velocity and then on arrival traveling backwards in time to the instant of departure. To put it another way, the simultaneity measurements prohibited by special relativity must lead to a definite and unambiguous determination of the simultaneous readings of two clocks separated in space. The clock-comparisons made possible by wormholes are not definite, because one clock could be in the future of the other, displaced by any time interval produced by the travel histories of the portals. Special relativity, which after all is embedded in the theory of general relativity that produced these revelations about wormhole physics, is preserved.

The law of physics that would be destroyed by the construction of a wormhole space-time connection is *causality*, the mysterious principle that prohibits communication backwards in time, that requires a cause to precede its effects in time sequence in all space-time reference frames. Causality as a law of the universe would not survive even a two-way communications link across time, let alone a portal permitting trans-time matter transmission.

The principal purpose of Morris, Thorne, and Yurtsever in discussing what an advanced civilization might do with wormholes, as mentioned above, is to demonstrate in effect that if causality is to be preserved as a law of physics, it must be saved at the quantum level. Quantum gravity, a theory-to-be which has not yet been developed, must impose some new physical limitations that make impossible the production of stable wormholes by the Morris-Thorne-Yurtsever scenario. General relativity, our present theory of gravity, prohibits neither faster-than-light space travel nor time travel with wormholes, but it does require that the two go together. Writers of hard SF should have fun with that one!

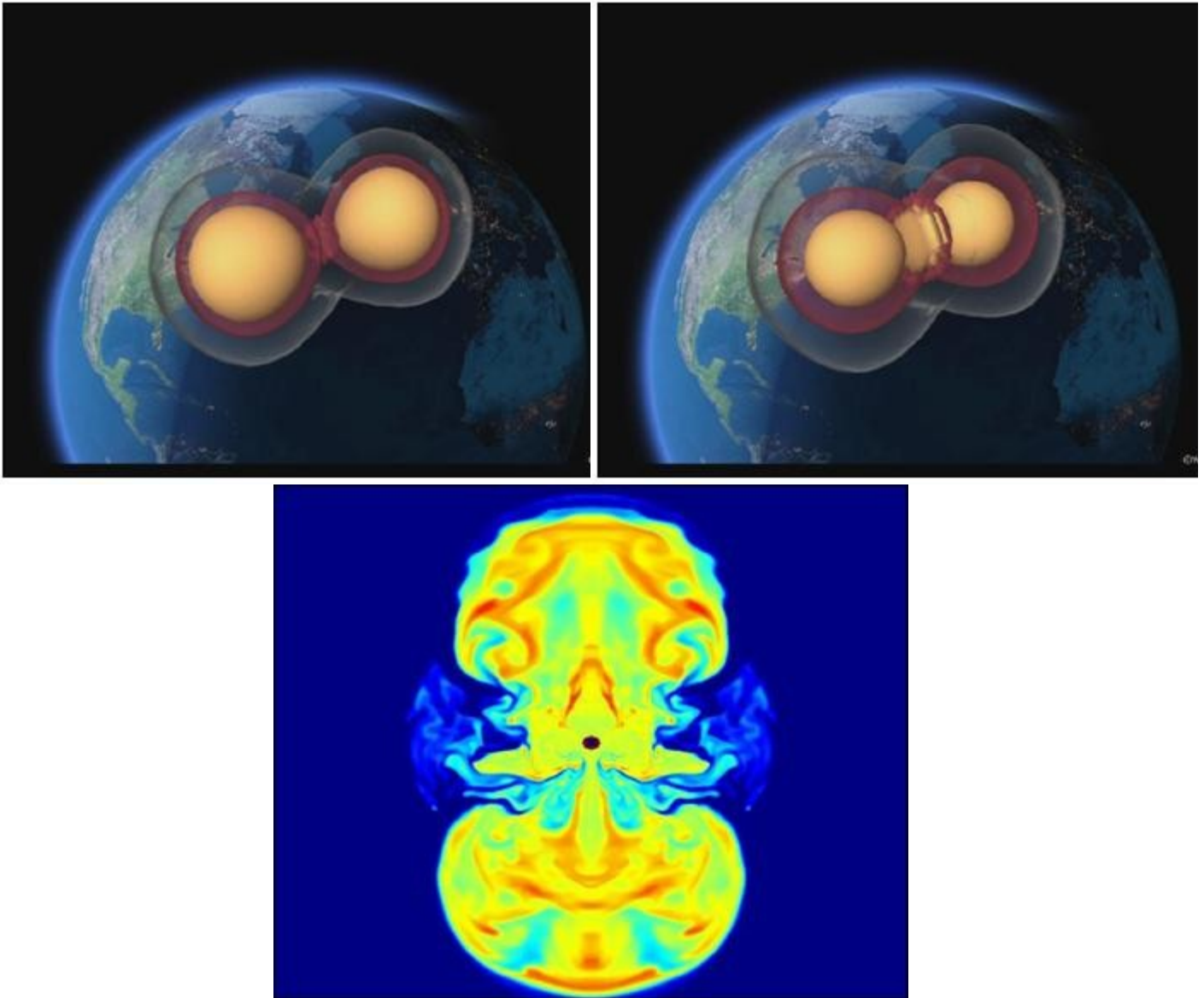


Figure 86: Creation of two converging plasma instabilities in Earth's orbit

Would-be wormhole engineers face the challenging problem of how to stabilize a wormhole, a topological shortcut from one part of the universe to another. Wormholes have a strong tendency to pinch off and disappear. It is well established that a sizable quantity of negative mass-energy is needed to overcome this tendency. That requirement has been perceived as a "show-stopper" because our universe does not seem to contain "exotic matter" objects with negative masses. The only known way of producing negative mass-energy in the laboratory, the Casimir Effect, can only make it in exceedingly tiny quantities.

However, Sergei V. Krasnikov of the Central Astronomical Observatory in Pulkovo, Russia, using Einstein's general theory of relativity, may have found a way around the negative energy problem. (For a discussion of earlier work of Krasnikov, see my column in the September-'97 Analog). Krasnikov has devised a new class of

wormholes that have the unusual characteristic of "puckered" throats. He has shown that for these wormholes, the negative mass-energy needed for stabilization is supplied solely by quantum fluctuations of fields in the vacuum. Thus, these wormholes need no "exotic matter" for their construction. His calculations indicate that it may be possible to construct a large transversable wormhole using only normal positive-mass matter and fields.

To understand what Krasnikov has accomplished, let us start with a review of the history of wormholes. For more than 80 years, Einstein's general theory of relativity has remained our "standard model" for gravity. In 1935 Einstein and his colleague Nathan Rosen discovered that implicit in general relativity is a tunnel-like structure in the topology of space-time, which we now call a wormhole. The mathematical equation (or "metric") of a wormhole describes a curved-space object that is a shortcut through space-time itself. A wormhole may connect two regions of space-time in the same universe (or can even connect two separate universes).

In principle, a wormhole can also make a "timelike" connection between one time and another in the same region of space, so that it becomes in effect a time machine, allowing communication and travel between the past and the future. However, some wormhole theorists, including Steven Hawking, have suggested that our universe may enforce a "chronology protection", with increasing vacuum fluctuations destroying any wormhole that is on the verge of become a time machine. These characteristics of wormholes were used in my hard SF novel, ***Einstein's Bridge***, in which alien-constructed wormholes were used for inter-universe communication, transport, and ultimately for destroying and "rewinding" our own universe back to 1987.

The mathematical possibility that wormholes may exist, implicit in Einstein's equations, raises a number of interesting questions:

- Are there classes of wormholes that are "stable", that continue to exist for extended time periods?
- Are there classes of wormholes that are "transversable", in the sense that light or matter or even people could pass through them?
- Do natural wormholes exist, and if so how can we find them?
- Could artificial wormholes be produced, and if so how can we make them?
- Could wormholes be used for faster-than-light travel and/or for time travel?

Not all of these questions can be considered here, but all of them have been at least partially addressed in several of my previous columns (see my Alternate View columns numbers 33, 39, 53, and 69, published in ***Analog*** in the June-`89, May-`90, July-`92 and mid-December-`94 issues).

If wormholes are to be used for FTL communication or transportation, the issue of stability is an extremely important one. In 1962, Wheeler and Fuller demonstrated that Einstein-Rosen wormholes (or "bridges") are extremely unstable, so that if such a wormhole should happen to appear spontaneously it would pinch off so rapidly that not even one photon of light could pass through it before it closed.

In 1988 Michael Morris and Kip Thorne of Cal Tech showed that stable wormholes are possible after all, and they described how a stable wormhole might be constructed by an "advanced civilization" (i.e., not us.) They found that to stabilize a wormhole, a region of negative mass-energy was needed in the wormhole's "throat". They suggested creating this negative energy region by using the Casimir effect, a quantum effect in which long-wavelength vacuum fluctuations are suppressed in a region between conducting surfaces. Morris and Thorne suggested creating the required region of negative energy by placing two electrically charged spherical capacitor plates in the curved space of the wormhole throat (with each sphere geometrically *inside* the other, and with the spheres spaced about a proton diameter apart!). Subsequent analyses showed that a Morris-Thorne wormhole would have to be of planetary dimensions, would require planet-mass quantities of negative mass-energy, and that the tidal forces created by the space curvature of the wormhole throat would be likely to destroy atoms (or people) attempting passage through it. Therefore, Morris-Thorne wormholes, while perhaps stable, cannot be considered to be transversable.

A few years later, Matt Visser of Washington University in St. Louis suggested a more user-friendly class of transversable wormhole. He describes his flat-space wormholes as produced by cutting holes in two separated regions of space time and then sewing the edges of the holes together with cosmic string. In other words, two joined regions of flat space are framed by a loop of "cosmic string" of negative mass and string tension. The cosmic string (another exotic artifact of general relativity) provides the needed negative energy. However, it is questionable (a) whether cosmic strings actually exist in our universe, (b) if they do, whether they can have negative mass and string tension, and (c) whether the tendencies of the wormhole to close up and of the negative-tension cosmic string loop to expand could be precisely balanced to produce a stable Visser wormhole. Therefore, neither Einstein-Rosen, Morris-Thorne, nor Visser wormholes appeared feasible for FTL transport in our universe.

At this point let us inquire just what theorists like Einstein, Thorne, Visser, and Krasnikov are doing when they use mathematics to design a wormhole. General relativity provides us with a procedure for designing a wormhole (or any other space warp) by following these three steps:

1. Describe the kind of space-curvature that is desired by using a "metric", a symmetric 4×4 matrix that is a mathematical description of curved space-time.
2. Solve Einstein's equations for the "stress-energy tensor" (a mathematical description of how mass-energy from matter and fields is distributed in space), such that the stress-energy tensor will produce the desired metric.

3. By successive approximations, find a configuration of matter and fields that will produce the required stress-energy tensor.

That's all there is to it. However, while many wormhole theorists have been able to carry out steps 1 and 2, the problem lies in accomplishing step 3. Einstein's equations tell us that the stress-energy tensor needed to produce the metric for wormholes (and other space warps like "warp-drives" that are of interest to SF readers and writers) requires a large quantity of *negative* mass-energy that must be concentrated in a very small region of space. This violates what theorists call the "Weak Energy Condition" and has been viewed as requiring the existence of "exotic matter" having negative mass-energy. Unfortunately, all the matter and fields of our acquaintance have positive mass-energy. There has been a growing consensus among physicists that the requirement of negative mass-energy makes it impossible to construct a wormhole with normal matter and that some "exotic" material like Visser's negative-tension cosmic would be required.

However, this consensus may be wrong. Krasnikov has shown a third way of obtaining the negative energy needed to form a stable wormhole. He demonstrates that the fluctuating energy of the vacuum itself can be used as the source of negative mass energy, so that the wormhole that can be constructed with only normal matter and fields.

Empty space, according to quantum mechanics, is not static and unchanging, as one would naively expect. As the quantum vacuum is examined microscopically at smaller and smaller distances, it is found that virtual particles with both positive and negative energies spontaneously appear and then disappear, their brief period of existence governed by Heisenberg's uncertainty principle. Krasnikov's calculations indicate that the negative energy part of this process is useful for wormhole engineering.

Krasnikov separated the stress-energy tensor, developed in step 2 above, into two parts, one part from the mass-energy of quantum vacuum fluctuations and the other part from the matter and fields that form the construction materials of the wormhole. He performed "heroic" calculations with a fast computer using the large numerical relativity program **GrtensorII**. From these calculations he demonstrated that for his particular kind of puckered wormhole, the second part of the stress-energy tensor (the non-quantum-mechanical part) has positive energy and therefore can be produced, at least in principle, using only ordinary matter and fields. Moreover, he has shown that there is no particular size limitation to the new class of wormholes, and that they could be made as large as is needed.

It is not clear from his publications whether Krasnikov has actually evaluated the quantum mechanical part of the stress-energy tensor. However, it appears that for the new class of wormholes the requirement for exotic matter seems to have been ,with the quantum vacuum itself provides the negative energy contribution from quantum fluctuations of the electromagnetic field, the neutrino field, and the massless scalar fields (as predicted by some theories).

The metric of Krasnikov's new wormhole has a very simple mathematical form, a simple four-term equation. However, the curvature of space in the throat of the

wormhole is peculiar. It is wrinkled or puckered like crepe paper, folded into sine-wave rings from the center to the edge to make a sinusoidally varying space warp. Krasnikov has not reported the results of step 3 of the procedure above, so we do not know what configuration of matter and fields might be needed to produce this metric. In particular, we do not know whether the needed matter densities and field strengths lie within the ranges of what is currently feasible.

These "engineering details" need to be worked out. Even if only normal positive-mass matter is required, it may well turn out that Krasnikov wormhole can only be built out of "unobtainium". Also, the tidal forces from the space curvature and gravitational field gradients in wormhole throats need to be examined, to determine whether a space traveler passing through a wormhole throat of reasonable size would have a chance of survival. Moreover, Krasnikov's calculations and assumptions need to be verified by other relativity theorists. In particular, it is well known that calculations of the mass-energy of quantum vacuum fluctuations are tricky, and that results can be wrong by many orders of magnitude. It is important to verify that Krasnikov has avoided this pitfall.

Nevertheless, an important step has been made in the theory of wormholes. It has been demonstrated that stable transversable wormholes constructed from normal matter are possible, at least in principle. The details remain to be worked out, but we have the beginnings of the new art of wormhole engineering.

Role of Tesla technology in ascension

*Things were created rather in the minds of angels, than in Nature,
I.e. angels had all things clear in their minds and thoughts
before they got a real existence.*

Words by Augustine Blessed cited by H.P. Blavatskaya

In her book "Secret doctrine"

"I will not work for the present no more, I am working for the future"- said Tesla to journalists gathered in New York City more than seven decades ago. – "The future is mine!" Inventor of alternating current, polyphase engines and generator, reversible magnetic field, radio, teleautomatics, inventor, on whose patents energetics of XX century is properly based, worked alone on explanation of cosmic processes during decades, having a desire to combine material and spiritual theoretically like he did it in his practical discoveries.

Mentioning of Nikola Tesla's name now mainly connected with the so-called Tesla coil, inductive engine and international unit symbol to measure the force of magnetic field. Many facts of his life and his extraordinary creative gift are forgotten.

The most productive period of his creative work Tesla spent in USA. He had patented more than 300 inventions in different countries. Many of them still were not repeated; for example, receiver of radiant energy. We know nothing definite about its principle of operation besides that may be it is the question of transformer of energy produced by cosmic rays. In the period from 1899 until 1900, he devoted himself to the research of electromagnetic oscillations of very low frequencies in the specially built laboratory in Colorado Springs. Two years later he began to build a world relaying station on Long Island near New York and he didn't finish it. This experiment was financed by American steel magnate J.P. Morgan, Tesla's friend. After this project was closed in 1905, Tesla up to his death preferred to work alone, far from people's sight. This period was not without new discoveries. Just at that time being a mature scientist

he came to fundamental conclusions, which should become a new milestone in future science? We know from history that when scientific thought finds itself at crossroads, the scientists address to the past seeking for support and inspiration. Let's try to answer many important questions.

How Tesla came to his discoveries? These discoveries are: influence of super low-frequency electromagnetic waves on biological systems, especially on the work of cerebrum, coalescence of energy structures, the so called "fire balls" from inductive field of primary and secondary electromagnetic coils, superconductivity of natural and artificial mediums, the so called wireless energy transfer and so on.

What are the main axioms of Tesla's cosmology? How do they follow from his metaphysics? How did he apply them in his physical experiments? Why theorists and empiricists of modern physics of time are so interested in reconstruction of Tesla's missing theory of physical reality and his view on electromagnetic phenomena? Why Tesla didn't formulate his scientific theory and didn't publish it? Can Tesla's sight on ethic aspect of scientific discoveries help to ennoble modern natural science, especially physics, which is in crisis of ideas now? What can we expect from studying of Tesla's conceptions in near future? Whether it will be an overestimate to say that Tesla in 1900 grounded the possibility of global information-oriented society in his famous project - World-wide system? Whether it is actually technical and technological basis of that, we call now "New World order"? Shall we consider Tesla to be a spiritual precursor of a new scientific and technological civilization named as Tesliana? Technology of "time design" rules in Tesliana, where the time-shift or rather asynchronicity of various levels of physical processes will be the only and inexhaustible energy source.

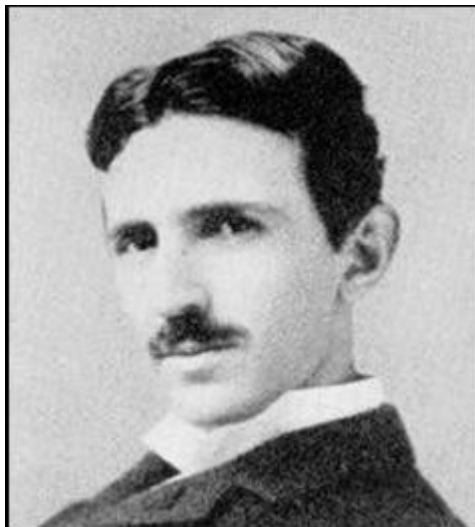


Figure 87: Nikola Tesla

Secret of "fireballs"

Tesla could reproduce complex energy structures in laboratory conditions. He called the "fireballs". Russian academician Peter Leonidovich Kapiza also studied them, but he couldn't reproduce them in dirigible kind without Tesla's resonance transformer. Nowadays physicists (Corum brothers in America) reproduce some of Tesla's experiments with a certain success. They could receive "fireballs" of a very short standing and only three millimeters in diameter. Tesla produced ball lightning" of football ball size, kept them in hands, put them to the box and covered it with a lid,

then he took them from the box. These ball lightning were almost stable structures, which could be kept for minutes. Certainly, Tesla knew much more about this phenomenon than modern science; he knew the secret of cold plasma fusion in free space.

Thus, Tesla penetrated to the field, which was unexplored before, i.e. the time engineering technologies. He also emphasized that his electromagnetic waves were different from Hertz's waves; i.e. the length of wave transmitted by him is equal to the distance on which this wave is transmitted. In other words, it is equal to the distance between sending object and receiving object. Hertz measures and space measures are changing in opposite directions: one Hertz is taken as corresponding to the wave length of approximately 300 000 km, 2 Hz – 150 000 km, 3 Hz - 100 000 km etc., which means that real length in space is decreasing with number of Hertz which are increasing.... That is why Tesla did not count in Hz-s...(technically, one meter of wire gives one Hz, two meters of wire two Hz and so on. Obviously, Hz's measures are not adjusted to technical properties of electromagnetic tools. (Notes from Alexander V. Frolov: In 1932 N. Tesla wrote: "I have showed that universal medium is a gaseous body. Only longitudinal impulses can propagate to this body. They create variable compression and decompression like those, which are created by the sound waves in air. Thus, the wireless transmitter does not create Hertz's waves, which are a myth, but it creates the sound waves in ether. The behavior of these waves looks like the behavior of sound waves in air excluding the fact that the huge elasticity and very small density of this medium makes their speed equal to the speed of light."). Besides, there were not only circles of oscillator (a device, which took part in the transference) in resonance, but the entire system was also in resonance with natural electromagnetic waves of the corridor of their passing. It meant that an oscillator starting transmitting almost intercepted ether in the space between transmitter and receiver and there it created a distinctive field of standing waves. Thus, a waveguide formed at first, which couldn't transfer energy of its own. Then Tesla turned on a low-frequency field and transmitted waves, which were the lower harmonic components of the main field carrier, in the ratio of 1:4. In such a way he could transmit energy at the desired distance and make strong continuous electromagnetic discharges in certain zones while creating the wall from ionoplasma. Nothing could make a way through such energy wall without decay on molecules or atoms.

Project Tesla - The Wireless Transmission of Electrical Energy Using Schumann Resonance

It has been proven that electrical energy can be propagated around the world between the surface of the Earth and the ionosphere at extreme low frequencies in what is known as the Schumann Cavity. The Schumann cavity surrounds the Earth between ground level and extends upward to a maximum 80 kilometers. Experiments to date have shown that electromagnetic waves of extreme low frequencies in the range of 8 Hz, the fundamental Schumann Resonance frequency, propagate with little attenuation around the planet within the Schumann Cavity.

Knowing that a resonant cavity can be excited and that power can be delivered to that cavity similar to the methods used in microwave ovens for home use, it should be possible to resonate and deliver power via the Schumann Cavity to any point on Earth. This will result in practical wireless transmission of electrical power.

Background

Although it was not until 1954-1959 when experimental measurements were made of the frequency that is propagated in the resonant cavity surrounding the Earth, recent analysis shows that it was Nikola Tesla who, in 1899, first noticed the existence of stationary waves in the Schumann cavity. Tesla's experimental measurements of the wave length and frequency involved closely match Schumann's theoretical calculations. Some of these observations were made in 1899 while Tesla was monitoring the electromagnetic radiations due to lightning discharges in a thunderstorm which passed over his Colorado Springs laboratory and then moved more than 200 miles eastward across the plains. In his Colorado Springs Notes, Tesla noted that these stationary waves "... can be produced with an oscillator," and added in parenthesis, "This is of immense importance."⁶ The importance of his observations is due to the support they lend to the prime objective of the Colorado Springs laboratory. The intent of the experiments and the laboratory Tesla had constructed was to prove that wireless transmission of electrical power was possible.

Schumann Resonance is analogous to pushing a pendulum. The intent of Project Tesla is to create pulses or electrical disturbances that would travel in all directions around the Earth in the thin membrane of non-conductive air between the ground and the ionosphere. The pulses or waves would follow the surface of the Earth in all directions expanding outward to the maximum circumference of the Earth and contracting inward until meeting at a point opposite to that of the transmitter. This point is called the anti-pode. The traveling waves would be reflected back from the anti-pode to the transmitter to be reinforced and sent out again.

At the time of his measurements Tesla was experimenting with and researching methods for "... power transmission and transmission of intelligible messages to any point on the globe." Although Tesla was not able to commercially market a system to transmit power around the globe, modern scientific theory and mathematical calculations support his contention that the wireless propagation of electrical power is possible and a feasible alternative to the extensive and costly grid of electrical transmission lines used today for electrical power distribution.



Figure 88: Tesla tower, Colorado Springs

Methods

A full size, 51 foot diameter, air core, radio frequency resonating coil and a unique 130 foot tower, insulated 30 feet above ground, have been constructed and are operational at an elevation of approximately 11,000 feet. This system was originally built by Robert Golka in 1973-1974 and used until 1982 by the United States Air Force at Wendover AFB in Wendover, Utah. The USAF used the coil for simulating natural lightning for testing and hardening fighter aircraft. The system has a capacity of over 600 kilowatts. The coil, which is the largest part of the system, has already been built, tested, and is operational.

A location at a high altitude is initially advantageous for reducing atmospheric losses which work against an efficient coupling to the Schumann Cavity. The high frequency, high voltage output of the coil will be half wave rectified using a uniquely designed single electrode X-ray tube. The X-ray tube will be used to charge a 130 ft. tall, vertical tower which will function to provide a vertical current moment. The mast is topped by a metal sphere 30 inches in diameter. X-rays emitted from the tube will ionize the atmosphere between the Tesla coil and the tower. This will result in a low resistance path causing all discharges to flow from the coil to the tower. A circulating current of 1,000 amperes in the system will create an ionization and corona causing a large virtual electrical capacitance in the medium surrounding the sphere. The total charge around the tower will be in the range of between 200-600 coulombs. Discharging the tower 7-8 times per second through a fixed or rotary spark gap will create electrical disturbances, which will resonantly excite the Schumann Cavity, and propagate around the entire Earth.

The propagated wave front will be reflected from the antipode back to the transmitter site. The reflected wave will be reinforced and again radiated when it returns to the transmitter. As a result, an oscillation will be established and maintained in the Schumann Cavity. The loss of power in the cavity has been estimated to be about 6% per round trip. If the same amount of power is delivered to the cavity on each cycle of oscillation of the transmitter, there will be a net energy gain which will result in a net voltage, or amplitude increase. This will result in reactive energy storage in the cavity. As long as energy is delivered to the cavity, the process will continue until the energy is removed by heating, lightning discharges, or as is proposed by this project, loading by tuned circuits at distant locations for power distribution.

The resonating cavity field will be detected by stations both in the United States and overseas. These will be staffed by engineers and scientists who have agreed to participate in the experiment.

Measurement of power insertion and retrieval losses will be made at the transmitter site and at distant receiving locations. Equipment constructed especially for measurement of low frequency electromagnetic waves will be employed to measure the effectiveness of using the Schumann Cavity as a means of electrical power distribution. The detection equipment used by project personnel will consist of a pick up coil and industry standard low noise, high gain operational amplifiers and active band pass filters.

In addition to project detection there will be a record of the experiment recorded by a network of monitoring stations that have been set up specifically to monitor electromagnetic activity in the Schumann Cavity.

The extreme low frequencies (ELF), present in the environment have several origins. The time varying magnetic fields produced as a result of solar and lunar influences on ionospheric currents are on the order of 30 nanoteslas. The largest time varying fields are those generated by solar activity and thunderstorms. These magnetic fields reach a maximum of 0.5 microteslas (uT) The magnetic fields produced as a result of lightning discharges in the Schumann Cavity peak at 7, 14, 20 and 26 Hz. The magnetic flux densities associated with these resonant frequencies vary from 0.25 to 3.6 picoteslas. per root hertz (pT/Hz^{1/2}).

Exposure to man made sources of ELF can be up to 1 billion (1000 million or 1×10^9) times stronger than that of naturally occurring fields. Household appliances operated at 60 Hz can produce fields as high as 2.5 mT. The field under a 765 kV, 60

Hz power line carrying 1 amp per phase is 15 uT. ELF antennae systems that are used for submarine communication produce fields of 20 μ T. Video display terminals produce fields of 2 μ T, 1,000,000 times the strength of the Schumann Resonance frequencies.⁹

Project Tesla will use a 150 kw generator to excite the Schumann cavity. Calculations predict that the field strength due to this excitation at 7.8 Hz will be on the order of 46 picoteslas.

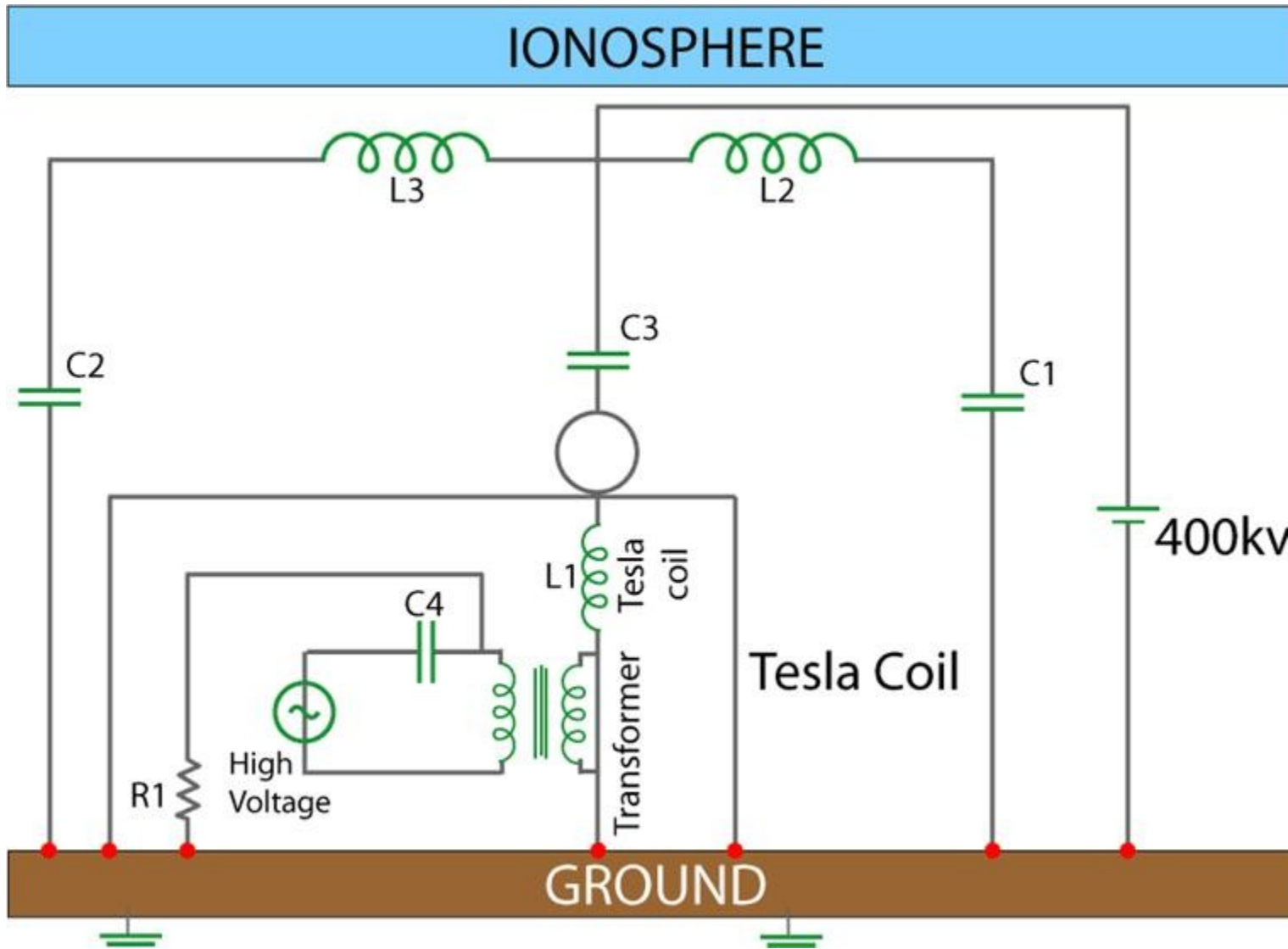
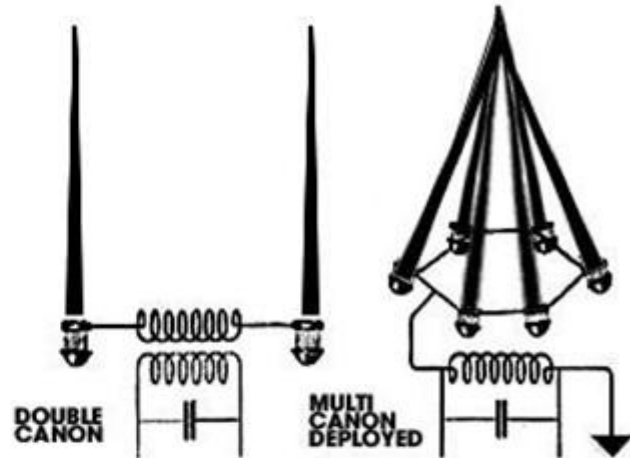
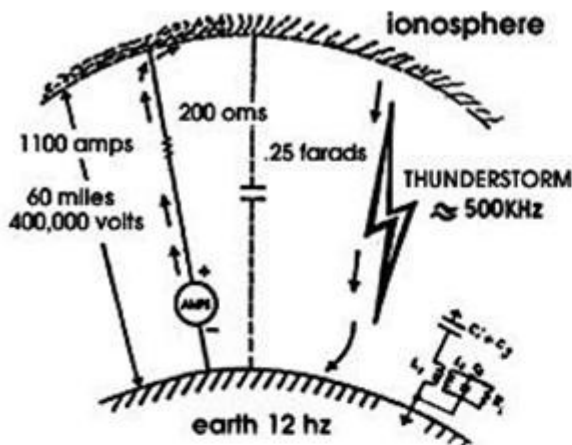


Figure 89: Tesla Magnifying Amplifier

DEATH RAY

DIRECTED IONIZED BEAM TRANSMITTER

INVENTOR: TESLA



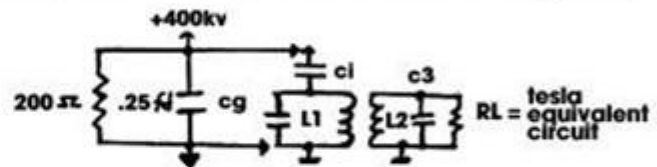
CONDITIONS FOR DEPLOYMENT

FREQUENCY = 12 HZ HARMONICS = 500 KZS
 ALL CURCUITS = 1/4 WAVELENGTH OR MULTIPLE
 RESONANT FREQUENCIES VALUES TO BE
 DETERMINED FROM THE TESLA EQUIVALENT
 CURCUIT DIAGRAM.

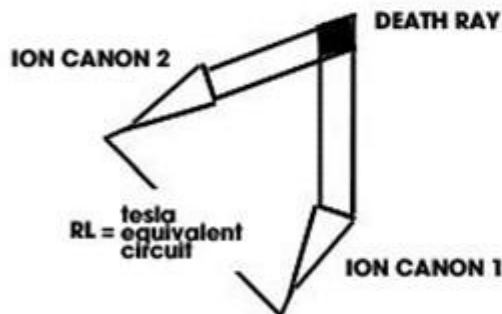
ELEVATED CAPACITORS FUNCTIONS:

- (1) c_g capacitor to ground
- (2) c_i capacitor to ionosphere

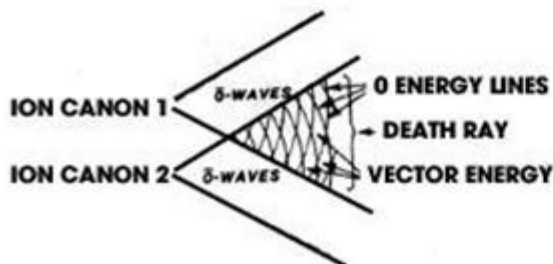
(equivalent circuit of earth's electrostatic voltage field)



c_i, L_2, c_3 = resonant stepdown plates
 (air coil coupling at desired frequencies)
 c_g = ground only



EQUIVELANT = 15 TONS TNT
 EFFECTIVE RANGE = 250 MILES



TESLA SCALAR WAVE SYSTEM EARTH AS A CAPACITOR

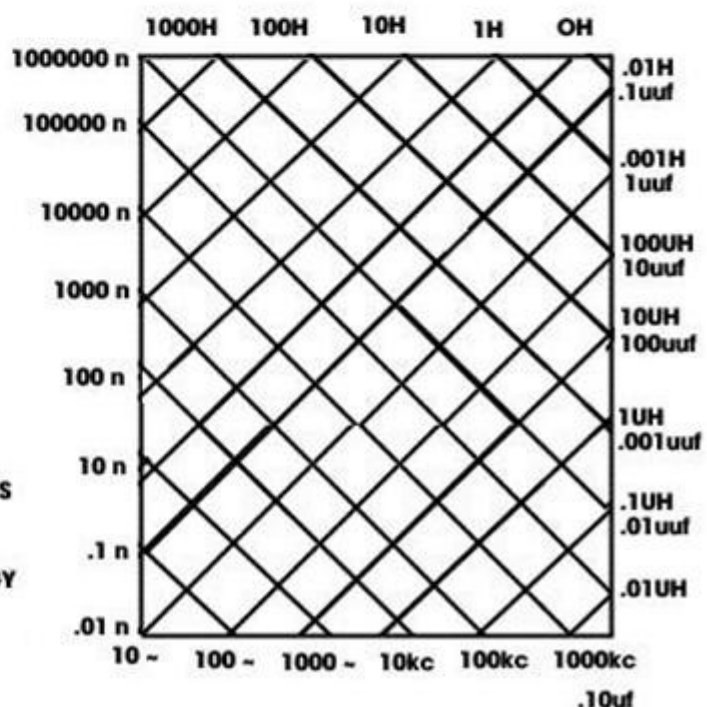


Figure 90: Basis of the ascension patent in Tesla's invention

Scalar EM superposition

Crucifixion and the body of Christ



Figure 91: Christ , ascension



Figure 92: Christ, crucifixion



Figure 93: Chi-Rho, Alpha-Omega

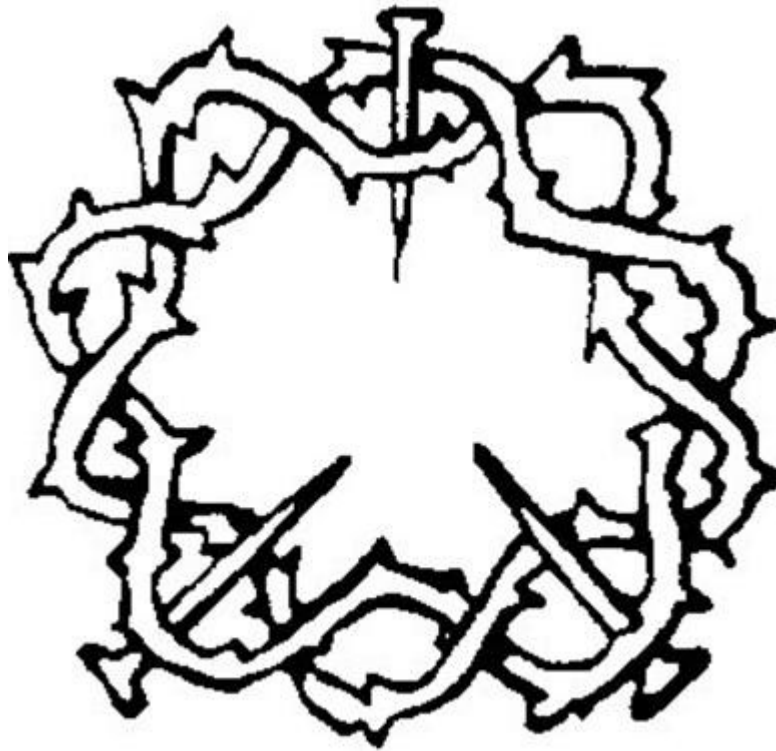


Figure 94: Crown of thorns

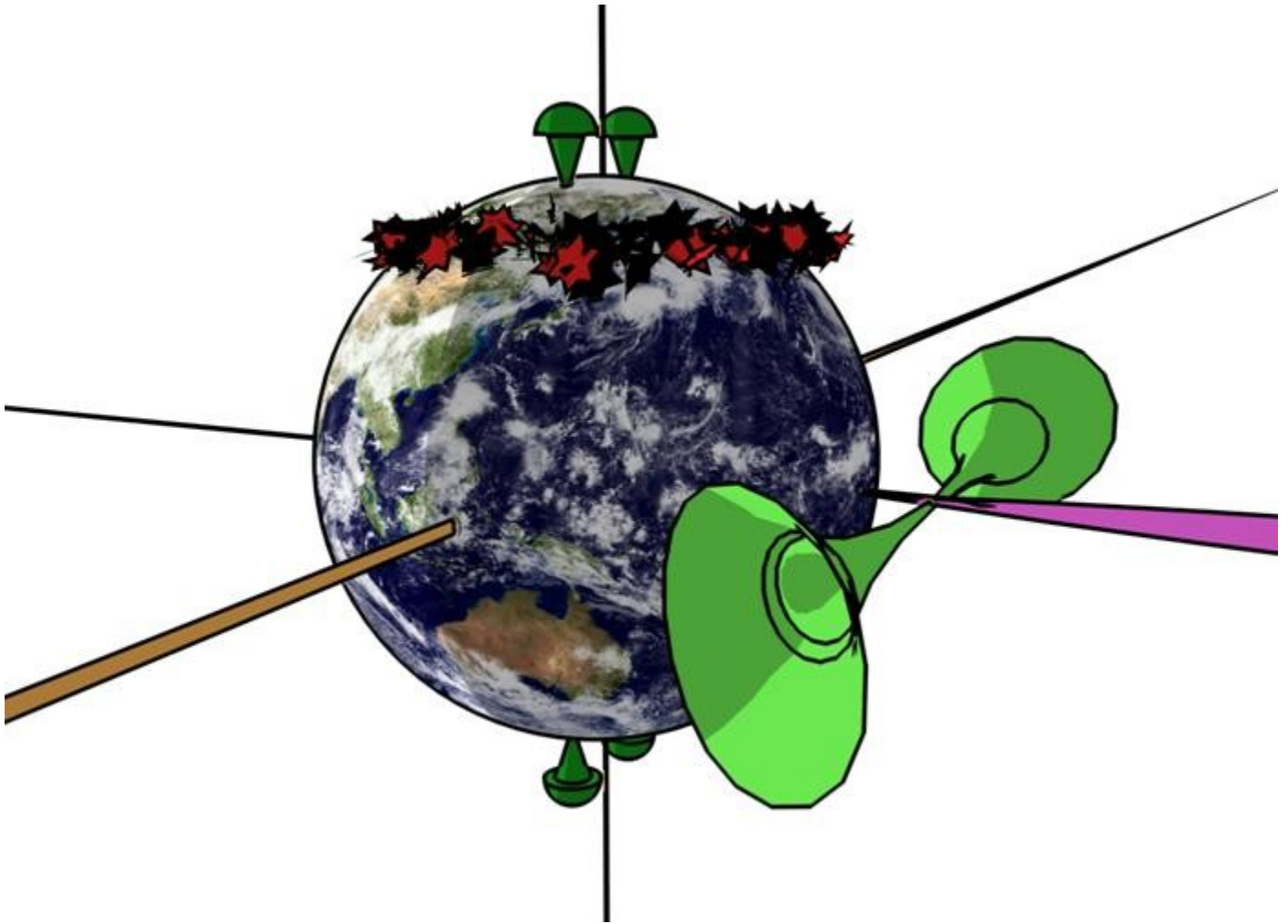


Figure 95: Rapture in Earth's etheric body of Christ

Spear of Destiny as a super-luminous jet, thorn circle on Christ's head, nails in his body

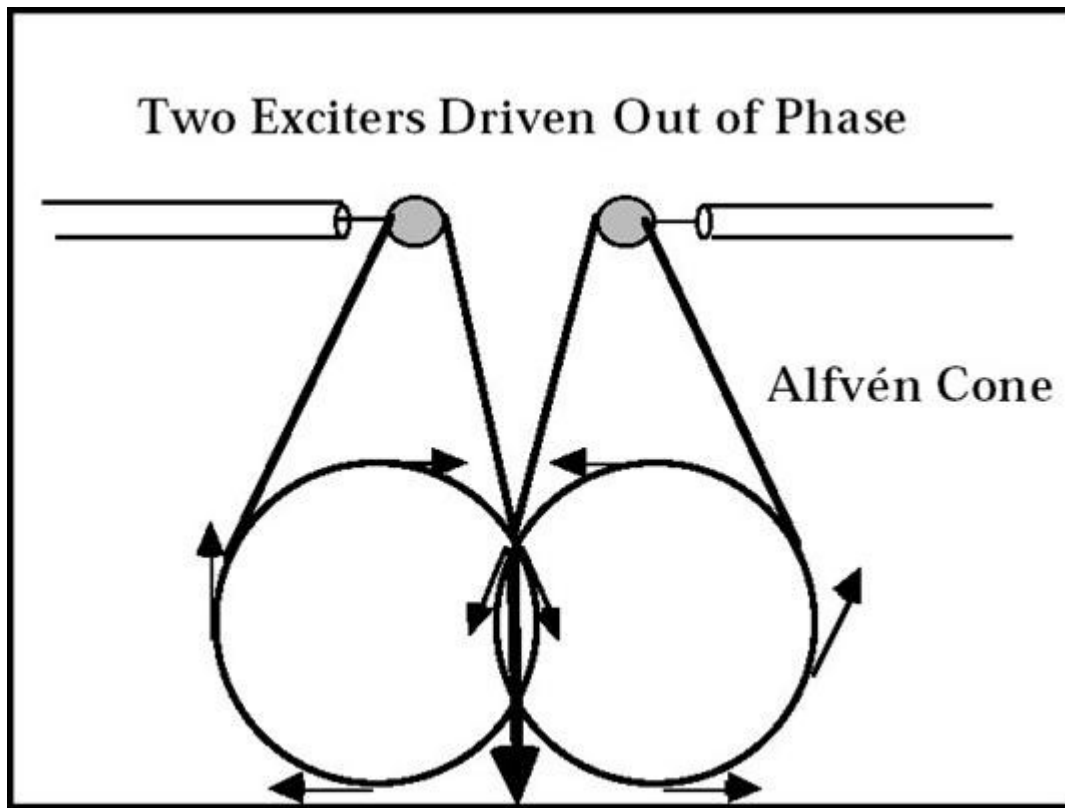


Figure 96: Schematic illustrating two intersecting Alfvén cones.
The interference pattern on axis produces an oscillating vertical field

To investigate the interaction between Alfvén waves, two identical disk antennas are situated in a uniform, magnetized plasma at the same axial location but on separate field lines. Each disk is excited by an RF signal coupled to the plasma through an isolation transformer to separate power amplifiers. The amplitude and phase of the signals are controlled by an arbitrary waveform generator.

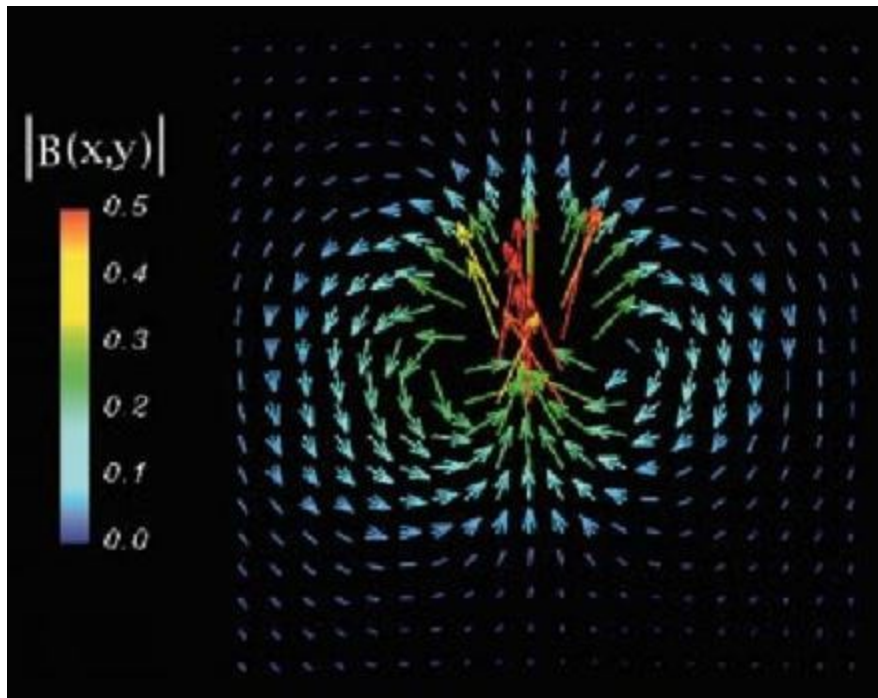


Figure 97: Measured magnetic field $B(x,y)$ for a wave produced by two radiating current channels

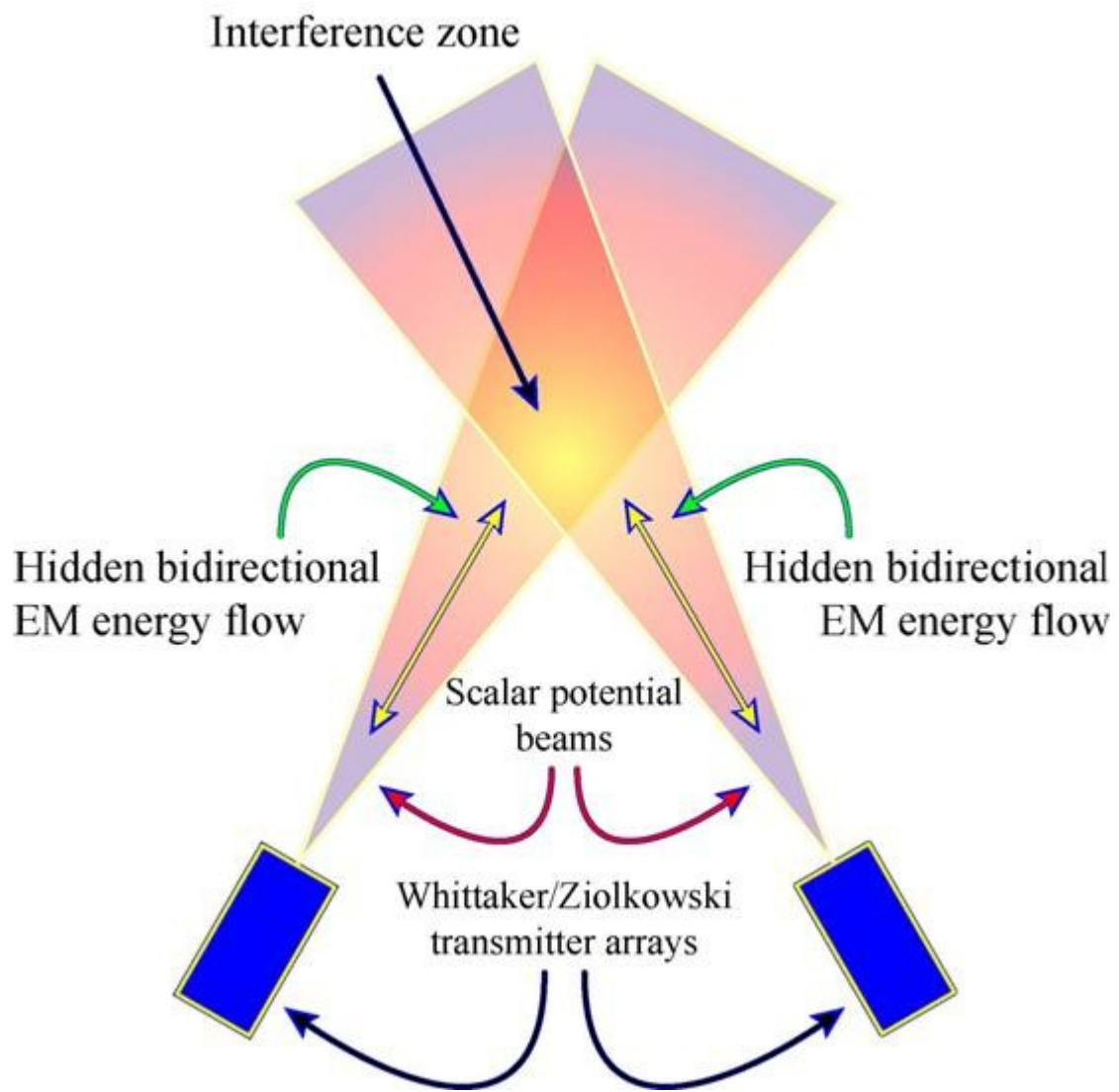


Figure 98: Scalar potential interferometry

PROPERTIES PHENOMENA	<i>Penetration through the matter</i>	<i>Geometry: sphere, ellipsoid etc.</i>	<i>Self-glowing, light absorption</i>	<i>Electromagnetic radiation</i>	<i>Electric field</i>	<i>Magnetic field</i>	<i>Levitation</i>	<i>The rotation of the air, dust etc.</i>	<i>Explosions</i>	<i>Connection with the active Sun</i>
<i>Vacuum domains</i>	+	+	+	+	+	+	+	+	+	+
<i>Ball lightnings</i>	+	+	+	+	+	+	-	+	+	+
<i>Natural self- luminous objects</i>	+	+	+	+	+	+	+	+	+	+
<i>Poltergeist</i>	+	+	+	-		+	-	-	+	-
<i>Tornado</i>	+	-	+	+	+	+	-	+	+	-
<i>"Angels"</i>	+	-	+	+	-	-	-	-	-	-
<i>'Small comets or atmospheris holes'</i>	+	-	+	+	-	-	-	-	-	-
<i>Ionospheric and atmospheric explosions</i>	+	+	+	-	-	-	-	-	+	-
<i>Lithospheric explosion pipes</i>	+	+	+	+	-	-	-	-	+	-
<i>Sprites, elves "</i>	+	+	+	-	+	-	-	-	-	-
<i>Glowings connected with the earthquakes and volcanic eruptions</i>	+	+	+	+	+	-	-	-	+	+

Figure 99: Physical properties of vacuum domains

Ball lightnings. The most well-known and studied anomalous phenomenon [1,2]. They display all the physical properties mentioned in Table 1. The papers don't mention the levitation, but it's hard to be observed due to relative smallness of the ball lightning (the diameter is equal to 10-30 cm).

1. **The natural self-luminous objects, i.e. "plasmoids".** These formations are large (10 m and more), and they are definitely self-luminous (fig.1, 2). Most often they appear near crust faults (in the energetically active zones of the Earth). Their physical properties are similar to those of ball lightnings [3]. At the same time the "levitation" is more definitely observable, as , for example , in the case of "Sasovo explosions" described by A.Yu.Olhovatov [4].
2. **Poltergeist.** The anomalous phenomenon connected with a ball-like slightly glowing object that can penetrate through the building walls, causes electric and magnetic fields and is able to cause damage to people [5].
3. **Tornado.** A well known violent rotation movement of the air, which is evidently associated with natural self-luminous formations (large ball lightnings inside the tornado column) and " swarms of ball lightnings". [6,7].
4. **"Angels".** A special kind of radar interference [8]. The radar have long since learned to tell "angels" from the "targets", e.g. airplanes and missiles. We have to notice that "angels" are detected some kilometers above tectonic faults whereas "the natural self-luminous formations" are found just above faults. So it's not hard to suppose that they are the same.
5. **"Small comets or atmospheric holes".** Unknown bodies that fall to the Earth from the space. (About 20 each minute, creating "black holes" in upper ionosphere having appr. 30 miles size). They were discovered on ultraviolet images of the Earth made at high altitudes. The discoverers supposed that these objects consist of snow and ice, but this hypothesis was doubted, particularly, by the fact that the tremors on the moon surface that correspond to the collision with such objects had not been detected. Possibly, these objects are also vacuum domains [9,10].
6. **Ionospheric and atmospheric explosions.** These are the natural explosions in the upper atmosphere and in the ionosphere of the earth [5,11].
7. **Litospheric pipe explosions** These kimberlite pipes are the great mystery of the modern geology [12].
8. **"Sprites", elves, jets.** Brief giant flashes in the atmosphere above thunderstorm cloud reaching 100 km height [13] often associated with most intense groups of cloud-to-ground lightnings
9. **The luminescences associated with the earthquakes and volcanic eruptions.** A luminous formations that have intricate time relation to main events: they may appear before after and in the course of earthquakes and volcanic eruptions [14]. Nevertheless these luminous objects accompany almost all of such events.

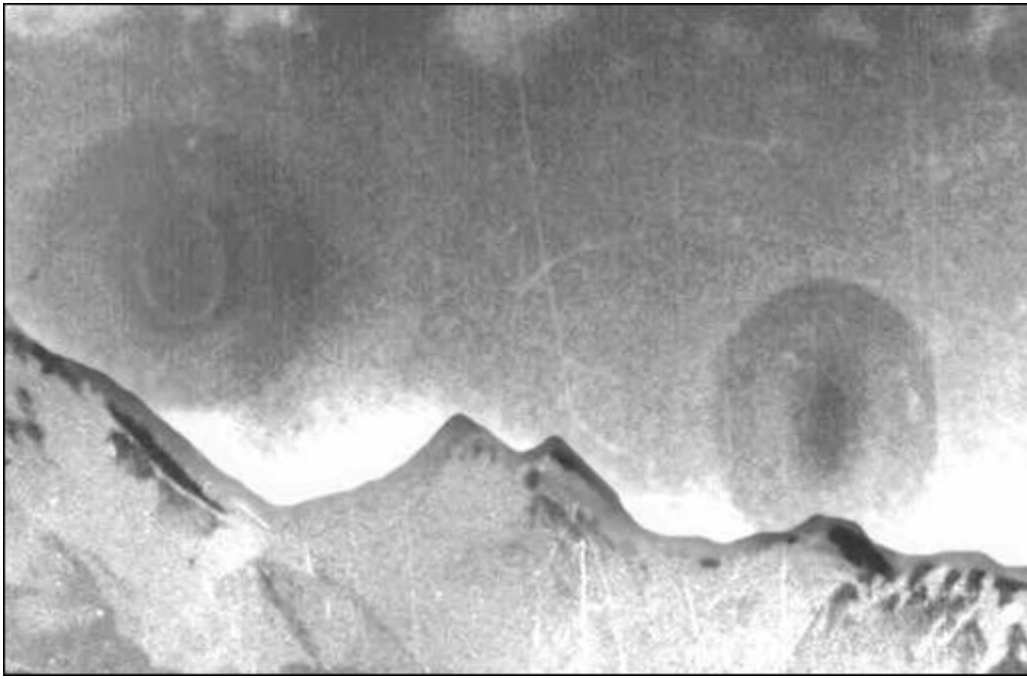


Figure 100: Largescale NSLF above the Katun'mountain ridge

The image was made aboard a helicopter on Aug.19, 1972 at 11:40 of local time. The observers' attention was drawn by "whitish shining spots in the direction of mt. Belukha summits". The disk and oval shapes, so distinctly visible on the photo, were not observed visually. An estimate of the objects using the topographic charts of the region, gives more than 1.5 km. (photo of A.V. Semeshin, camera "Kiev", exposure 1/250 s.)



Figure 101: "Belokurikha flame"

By the obserbers' description "the flame grew up from the Earth, then rolled itself into a bright ball, rapidly flew up and disappeared in the sky". The event happened in the area of fault net concentration of the South-Eastern part of Belokurikha massif (photo of unknown person)

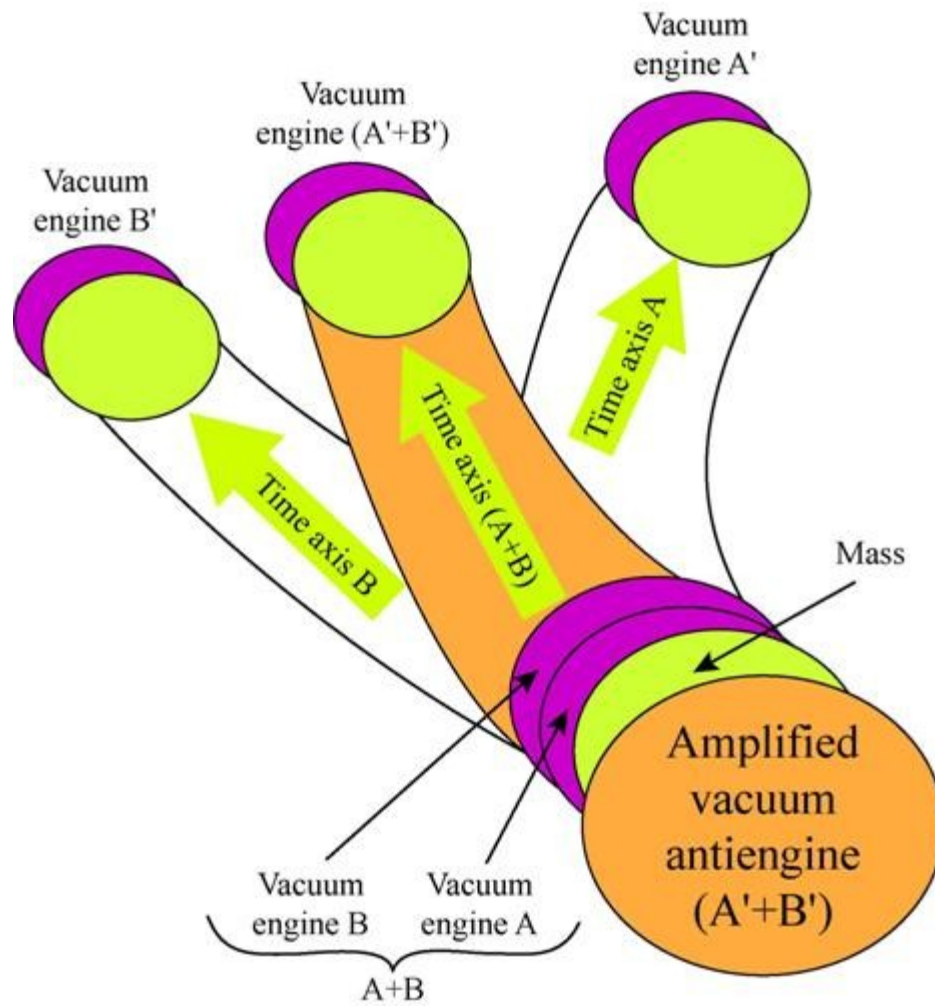


Figure 102: Pumping in the vacuum domain

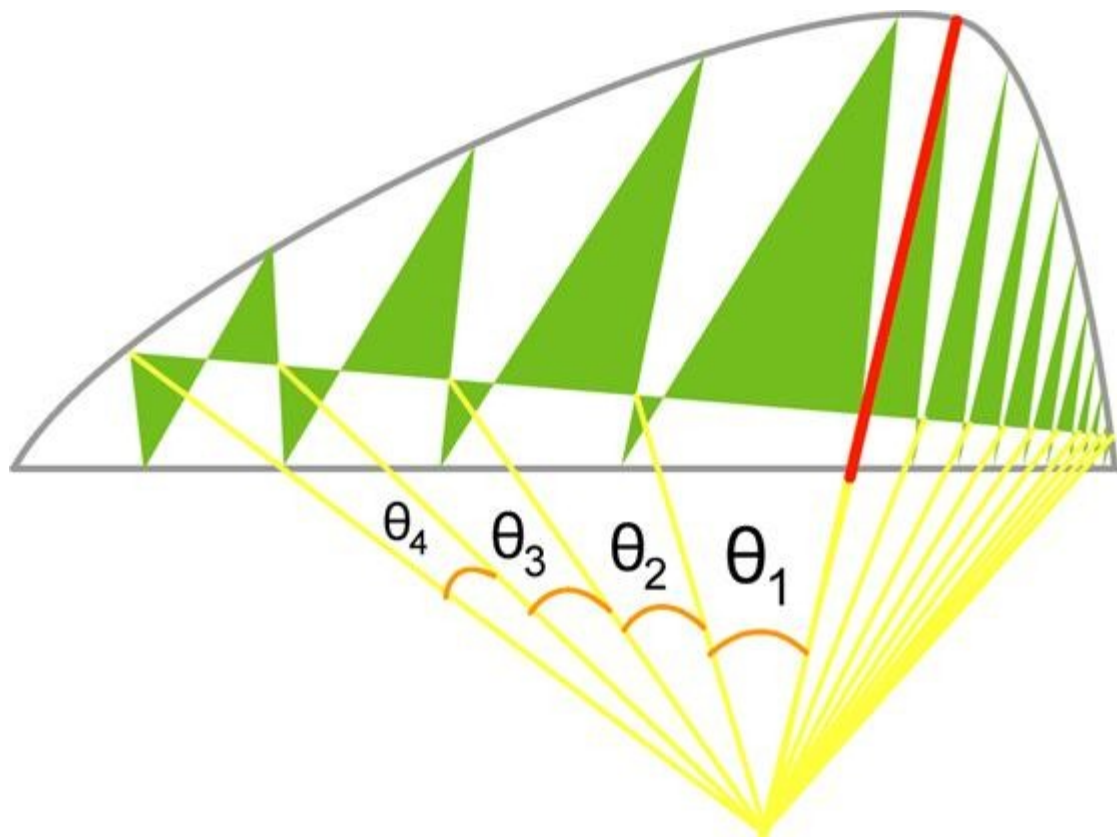


Figure 103: Time angle

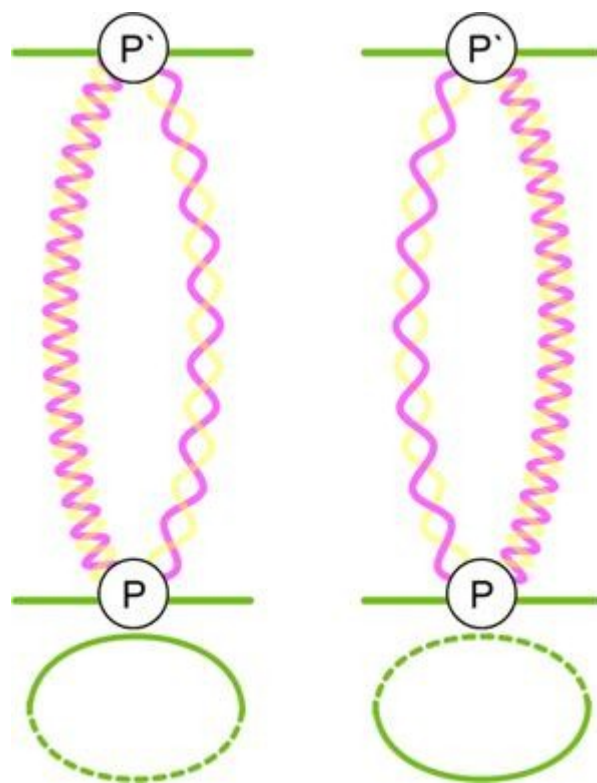


Figure 104: Longitudinal 2

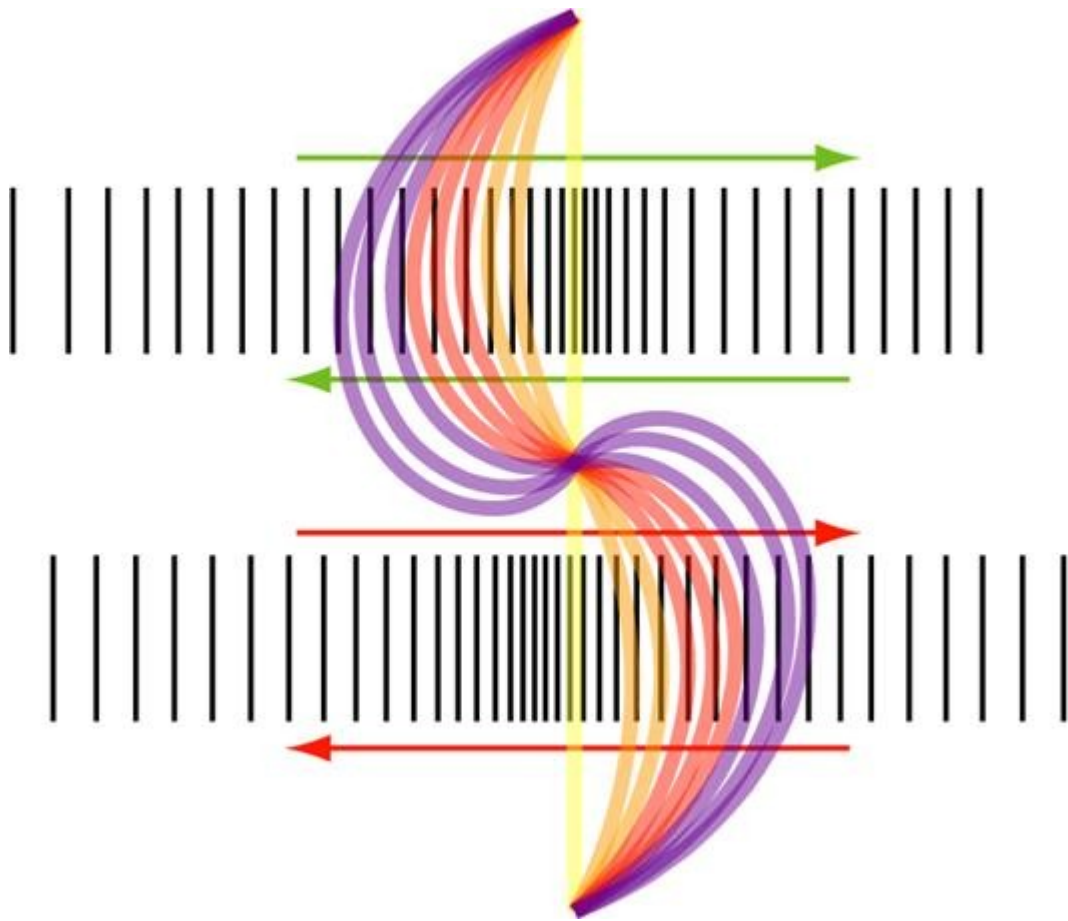


Figure 105: Longitudinal pump

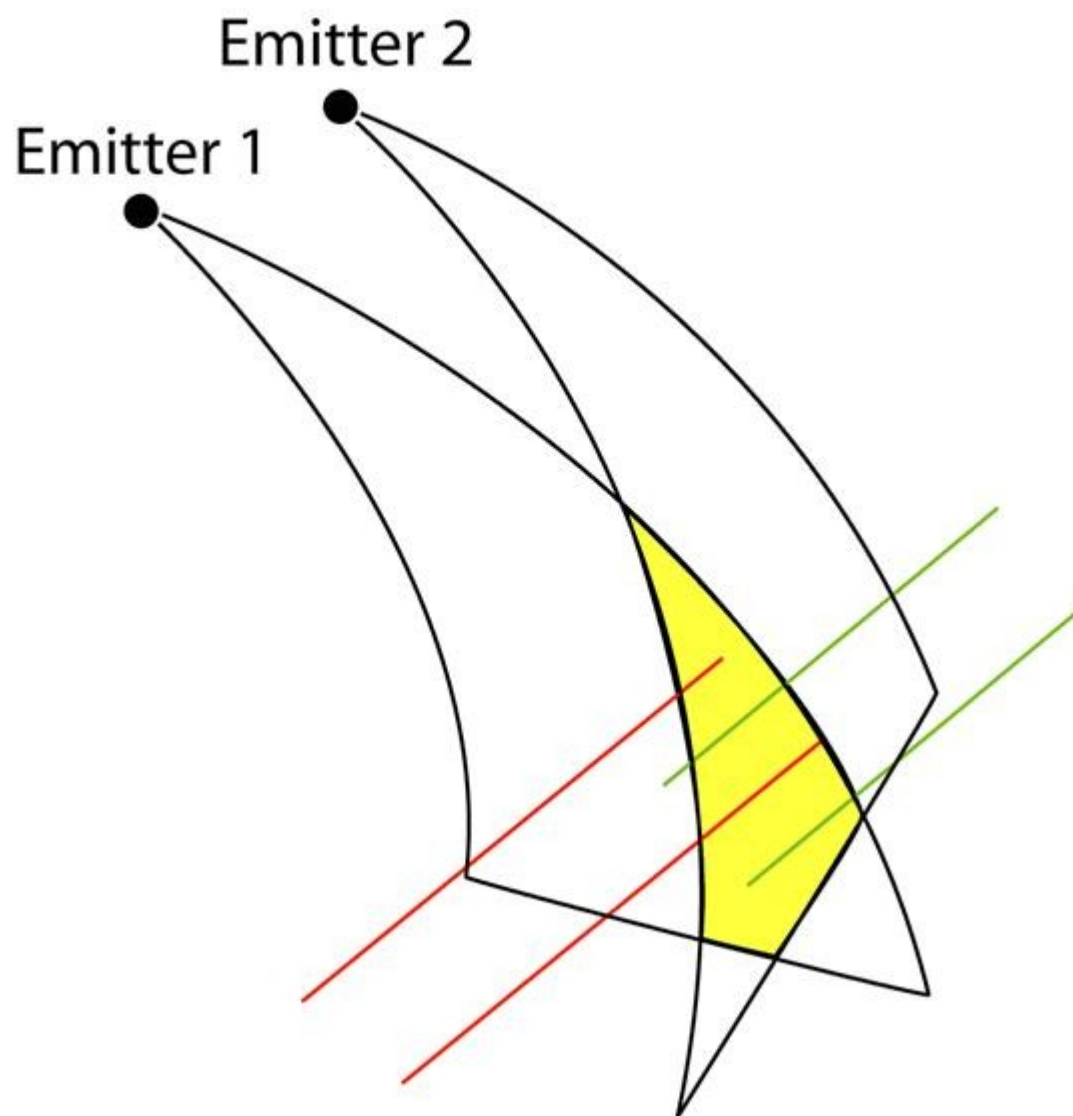


Figure 106: Longitudinal 3

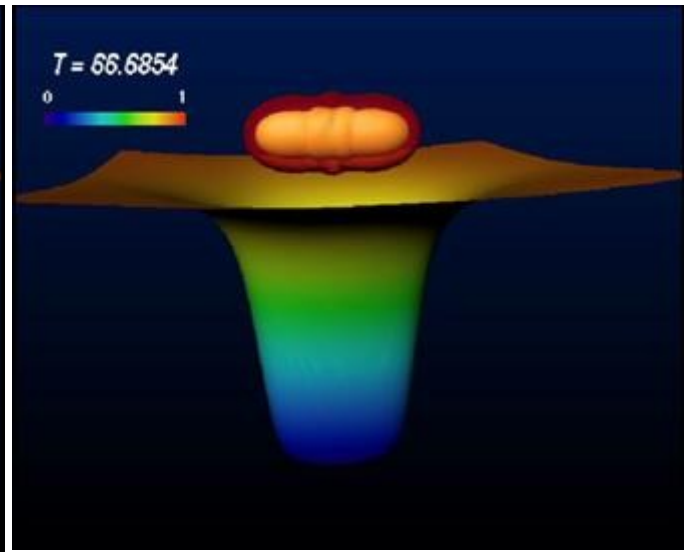
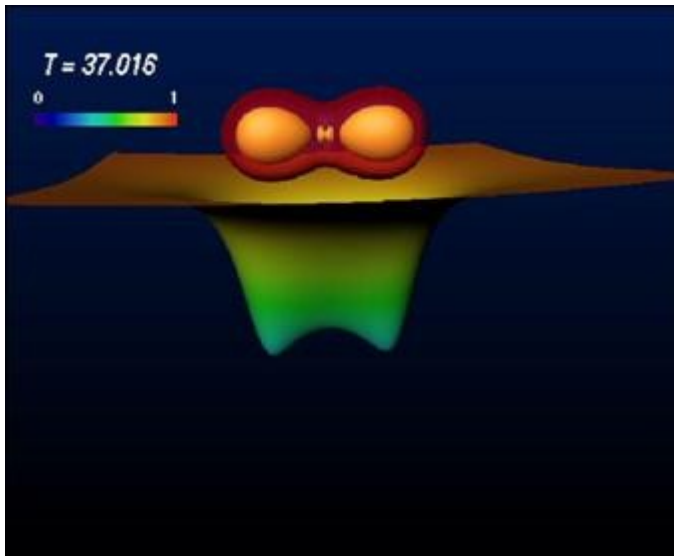


Figure 107: Gravitational lapse

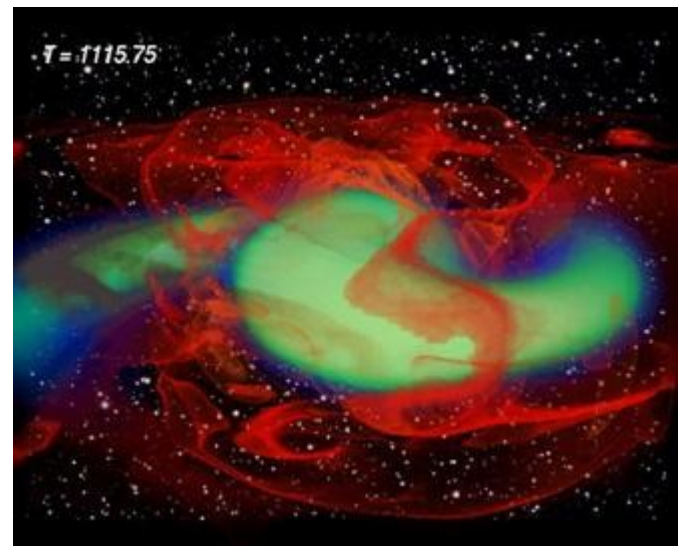
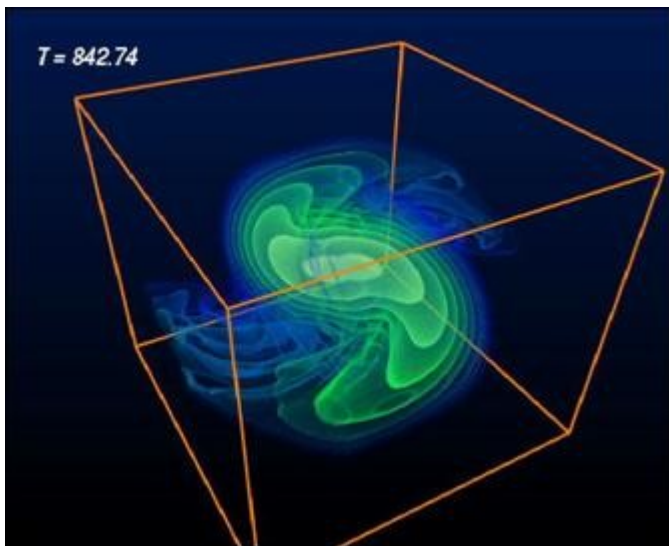


Figure 108: Creation of the plasma instabilities by synchronized pulses in the Earth's magnetosphere

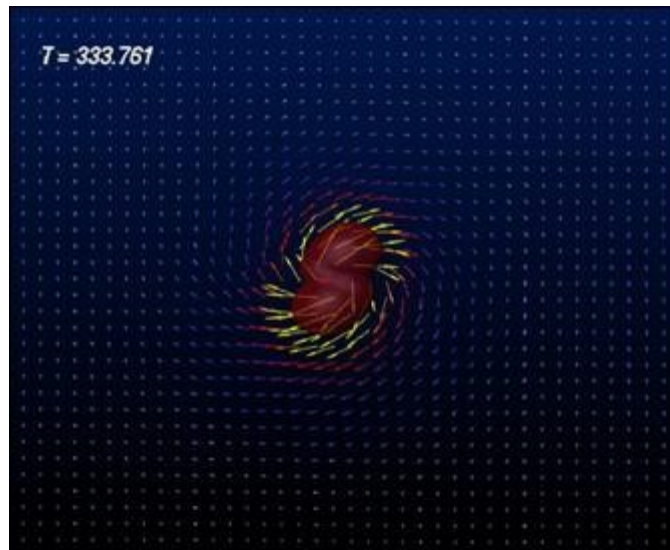
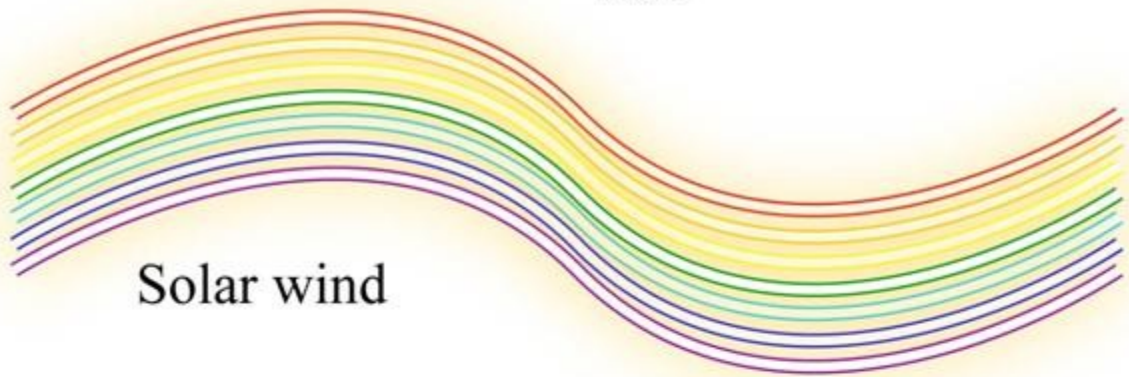


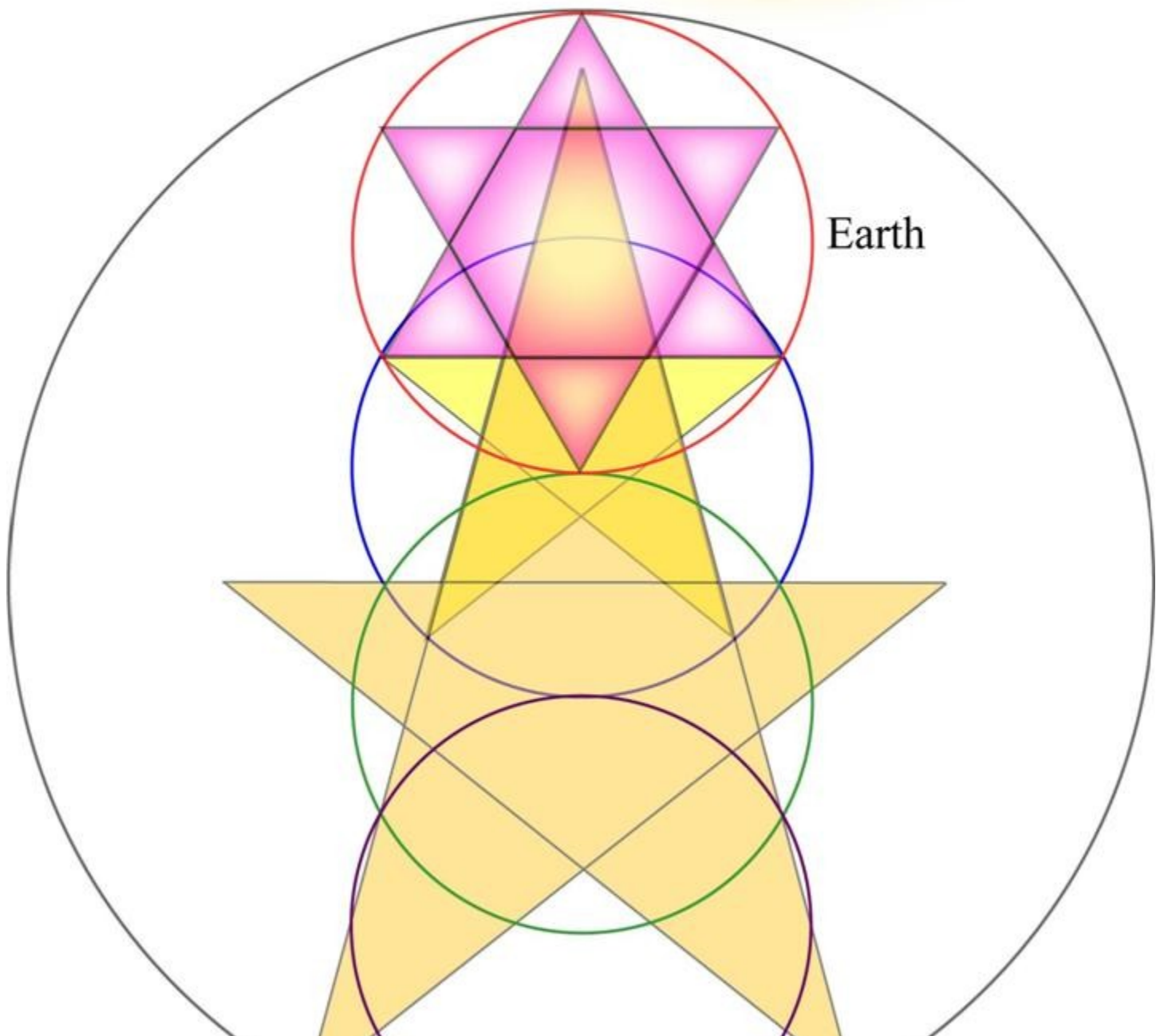
Figure 109: Time/Space curvature from an emerging gravitational lens



Sun



Solar wind



Earth

Figure 110: Etheric structure and flow of the Earth holon

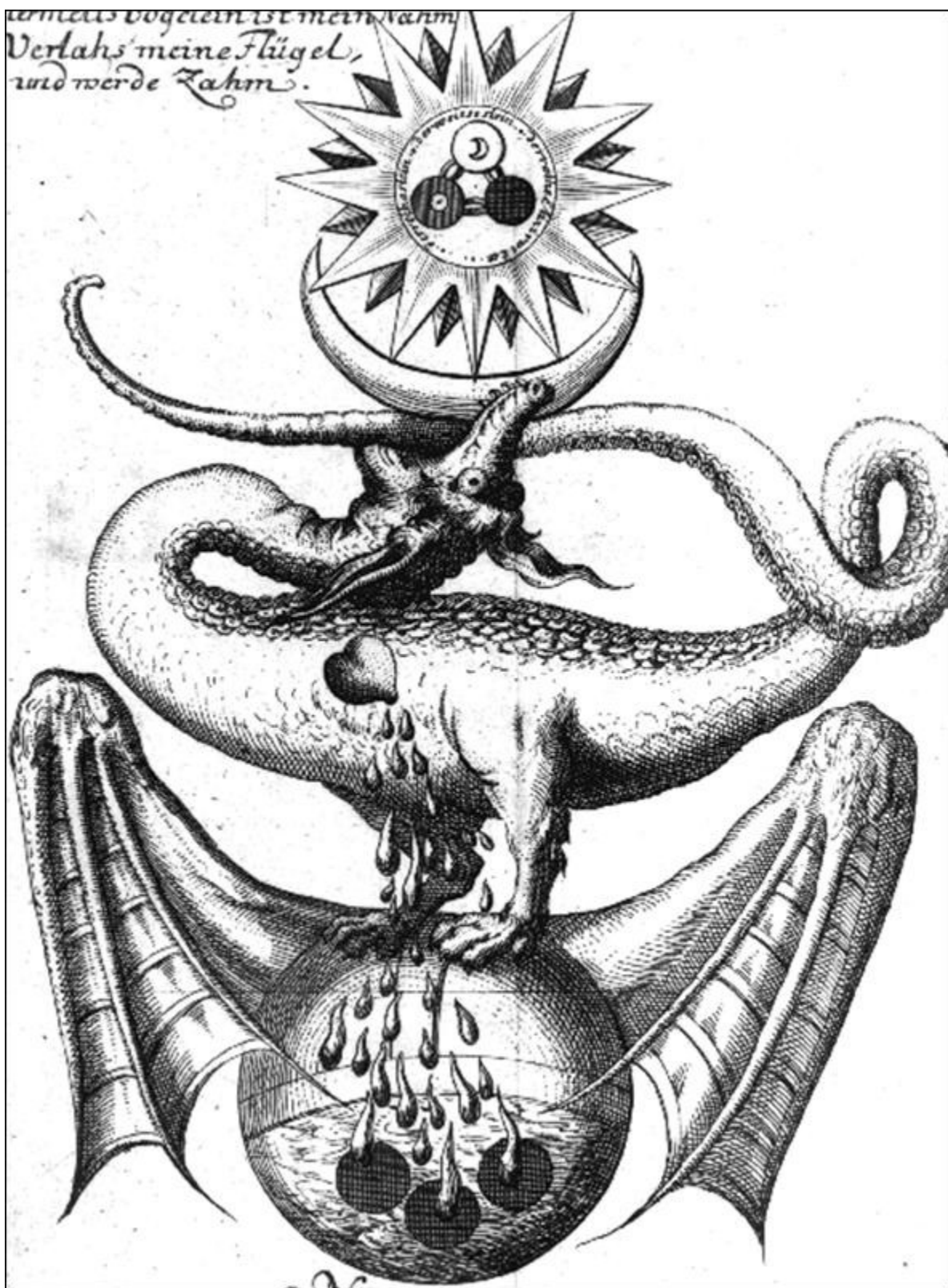


Figure 111: Astral snake – holy guardian angel of planet Earth

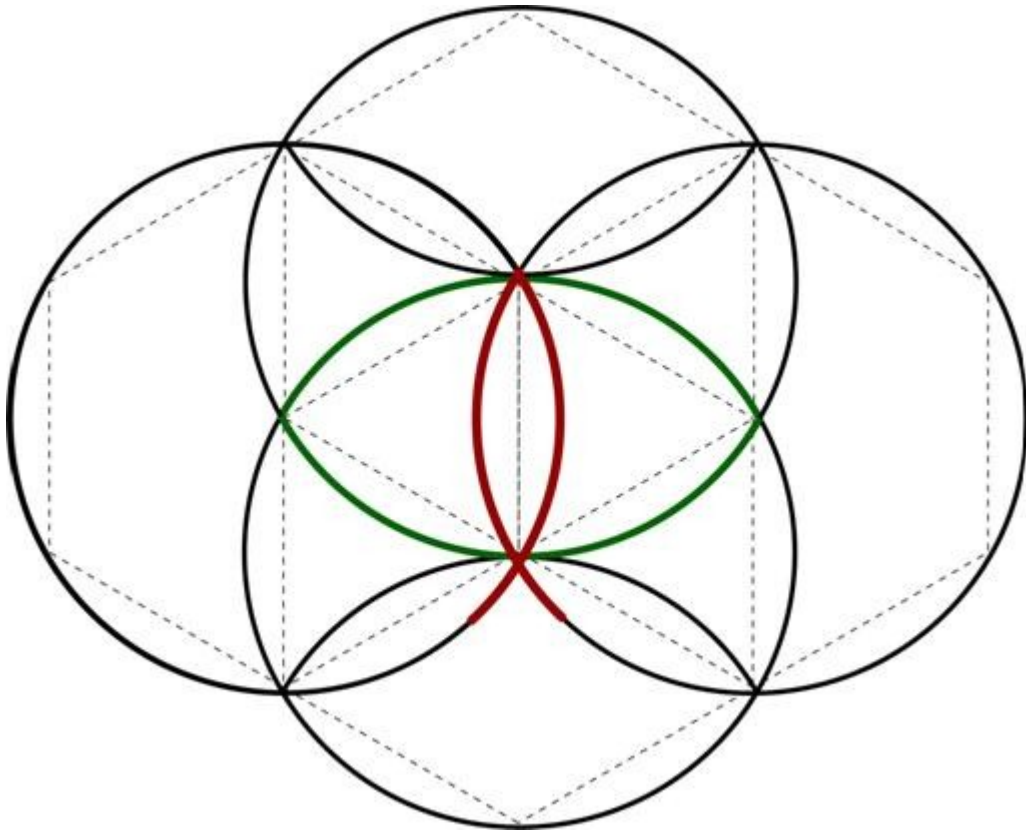


Figure 112: *Vesica Pisces* - A symbol of Christ

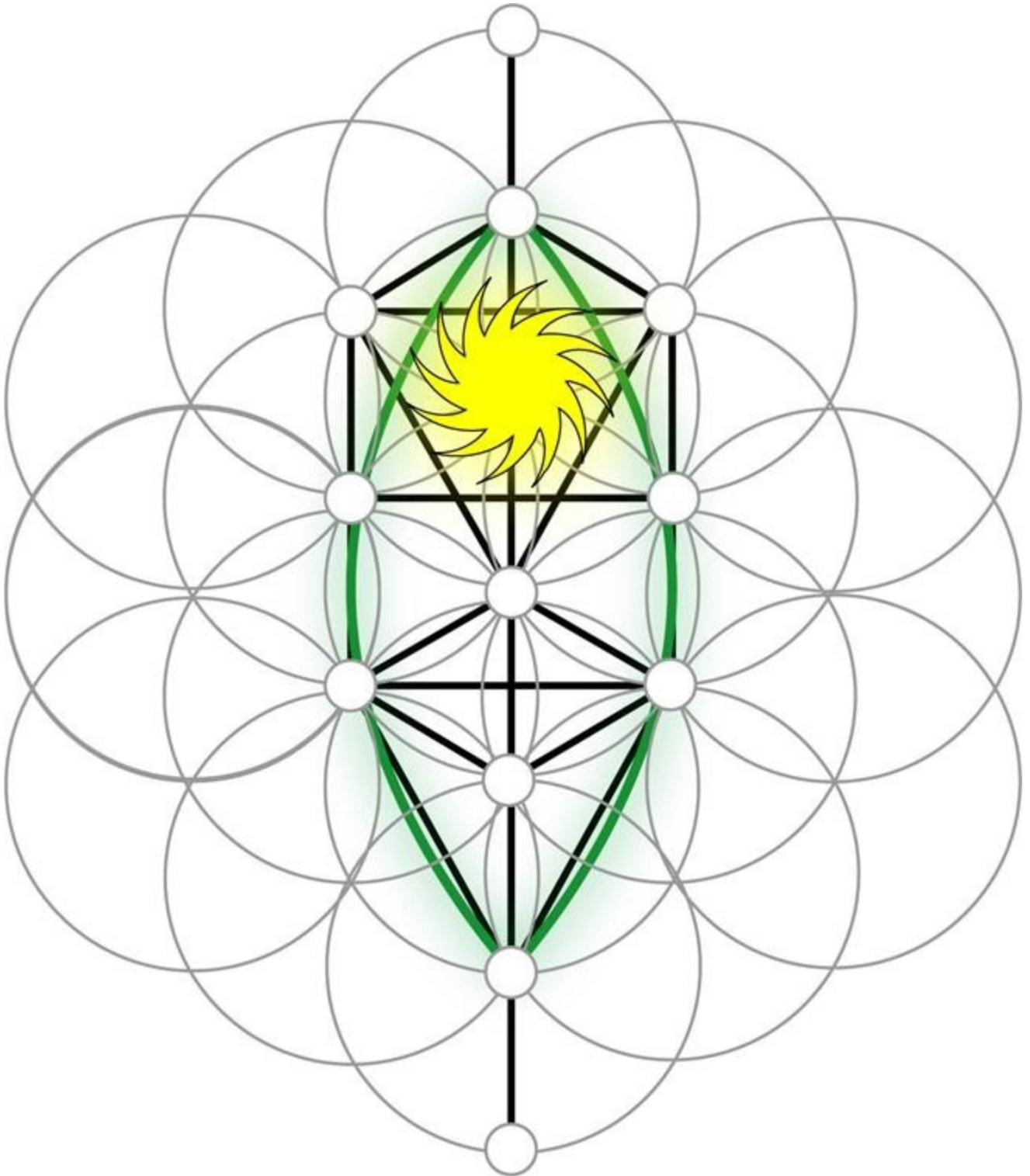


Figure 113: Flower of life - Etheric pressure points of the Earth Holon

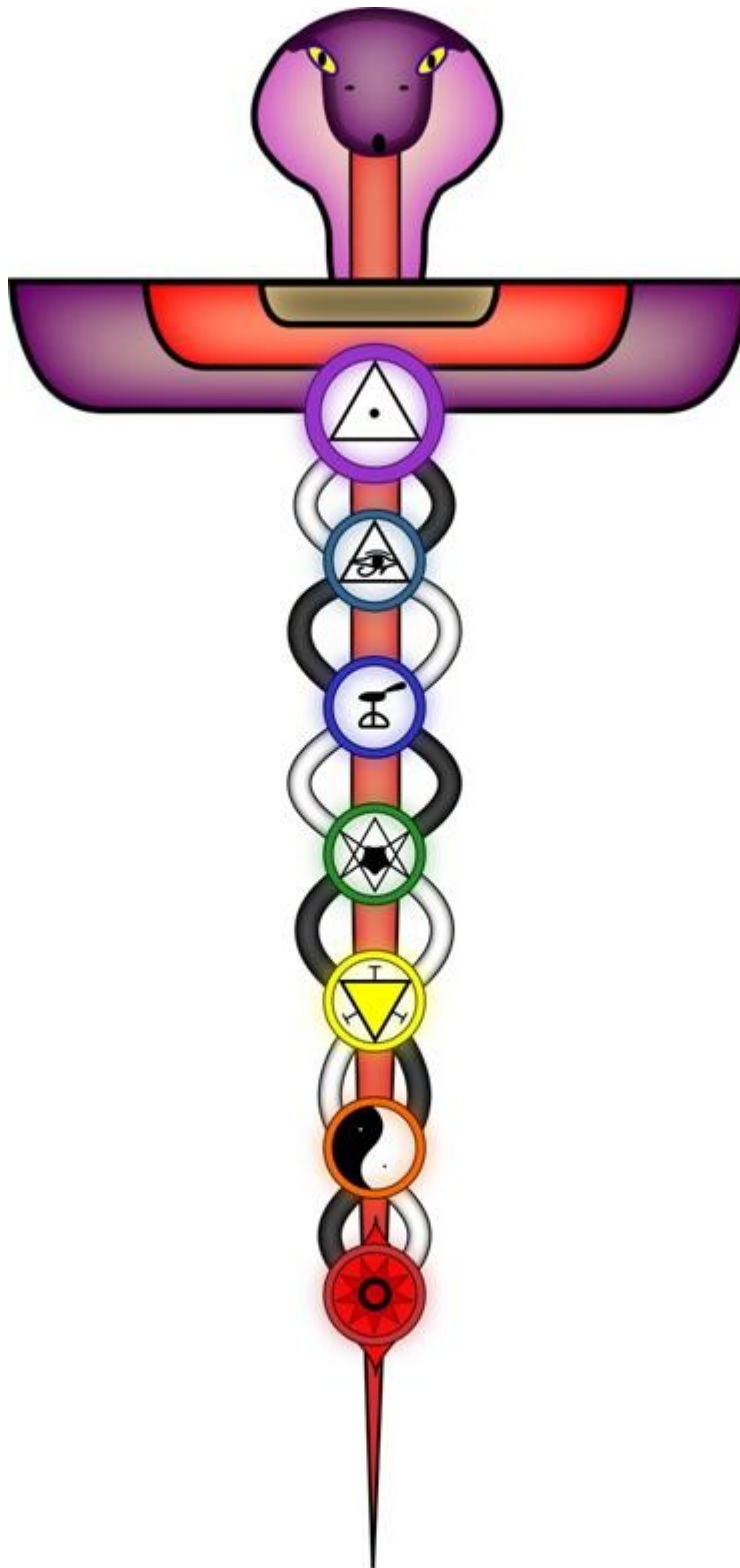


Figure 114: Earth Holon charkas as a projection of the collective human

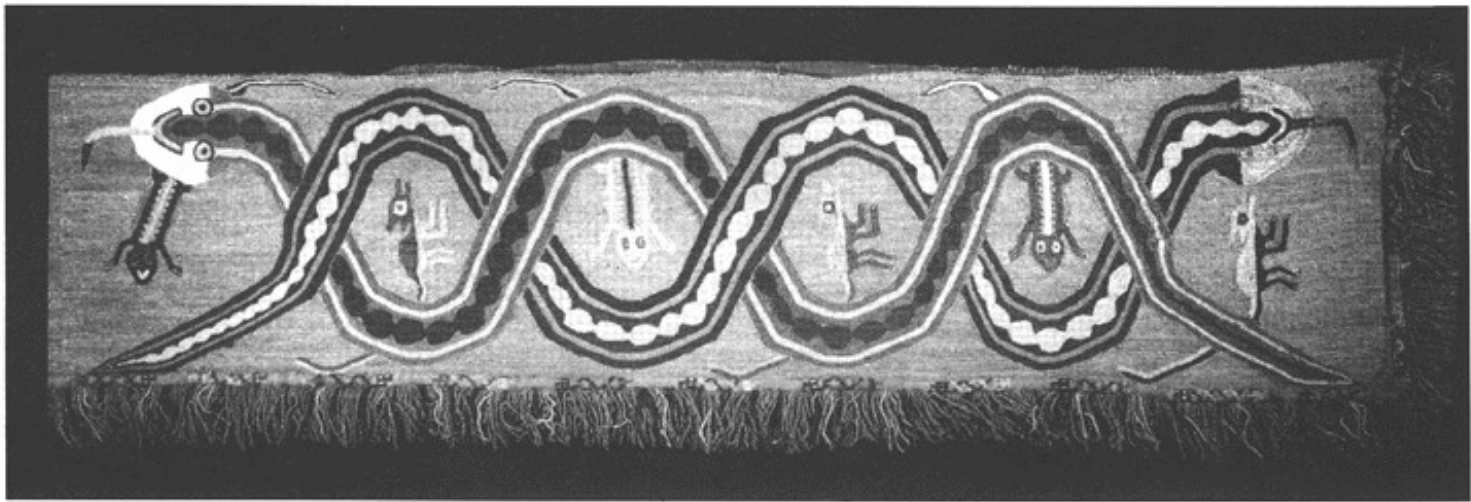


Figure 115: Part of a border in covering stem stitch showing two intertwined snakes with lizards and mice.
Late Paracas, Peru c. 300-200 BCE

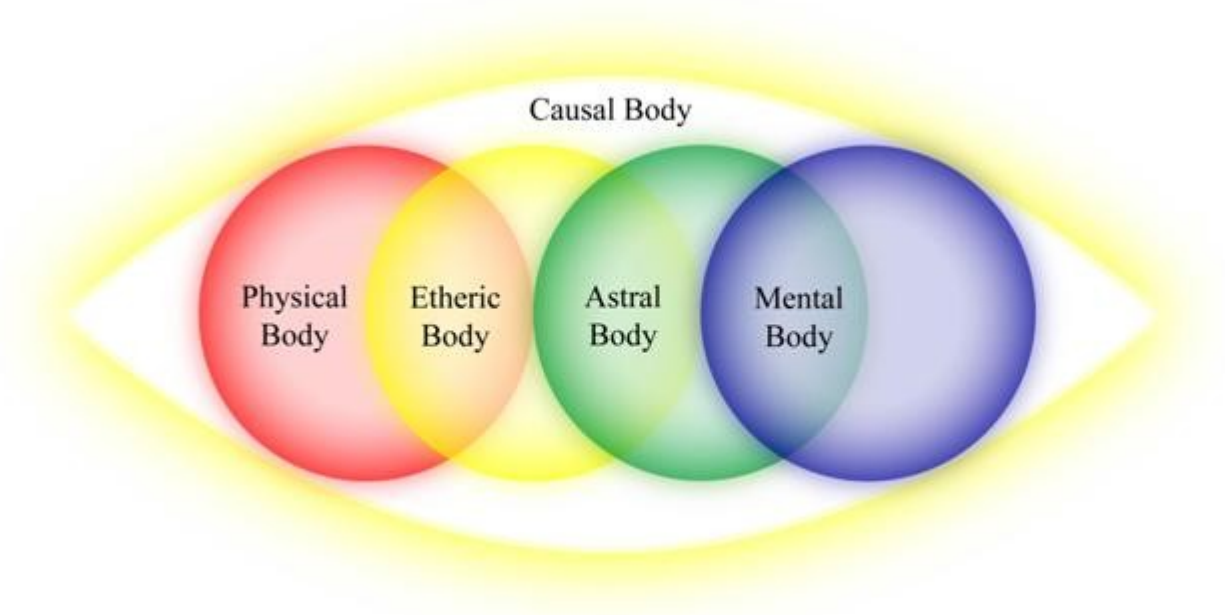


Figure 116: The four human bodies, the holy cross of spirit and matter

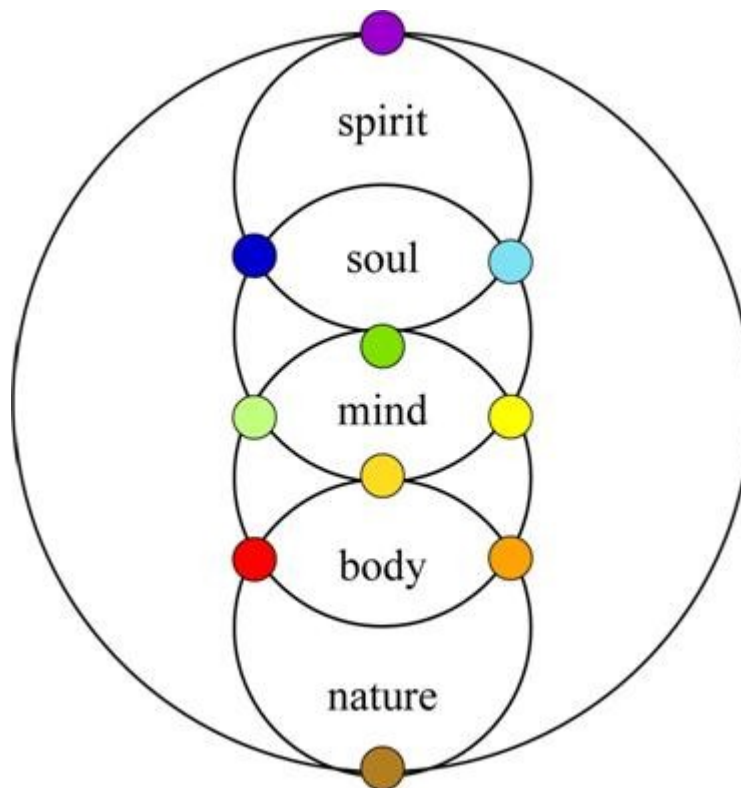


Figure 117: The four worlds of the Tree of Life

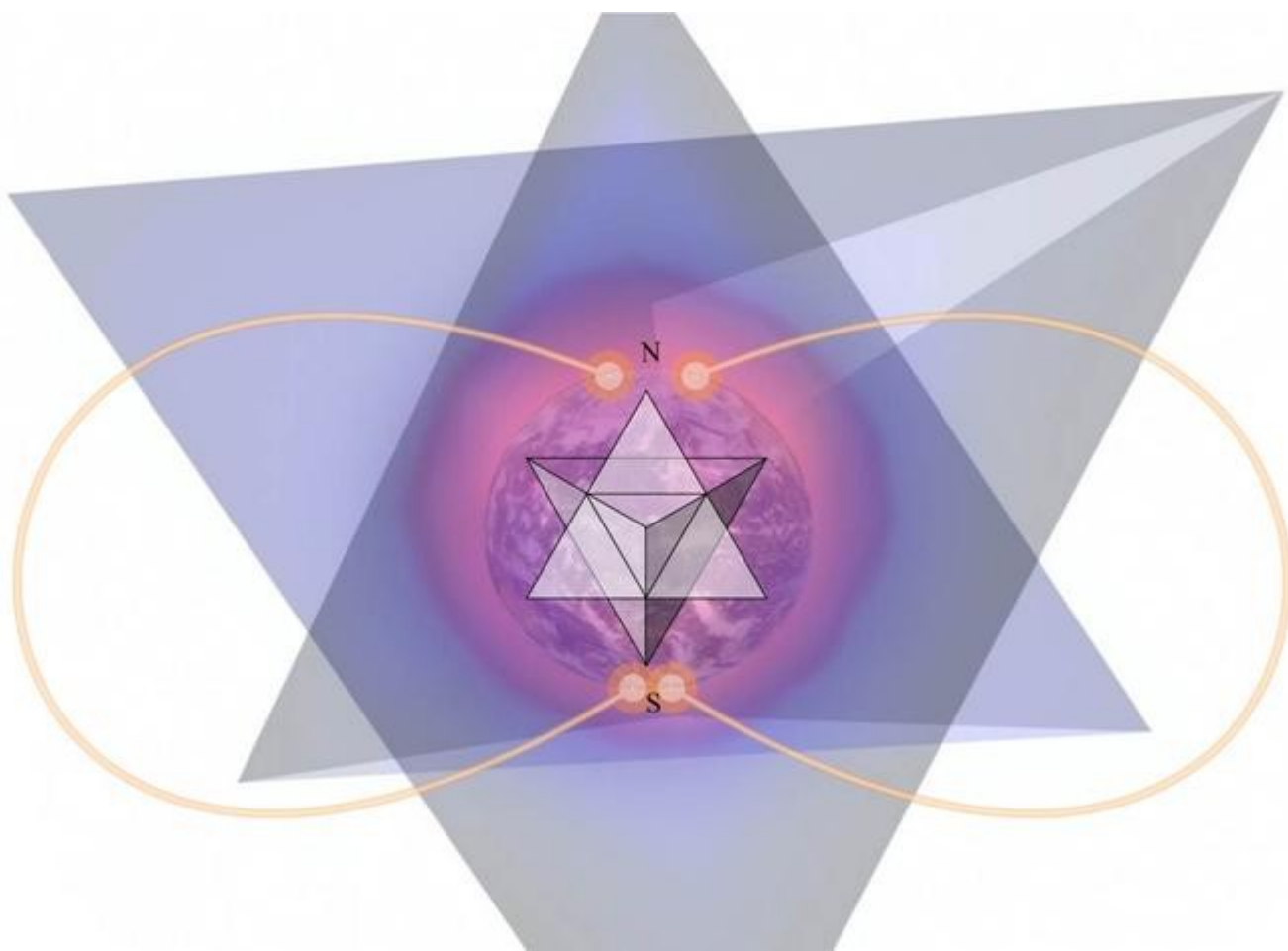


Figure 118: Astral cleansing apparatus and ascension

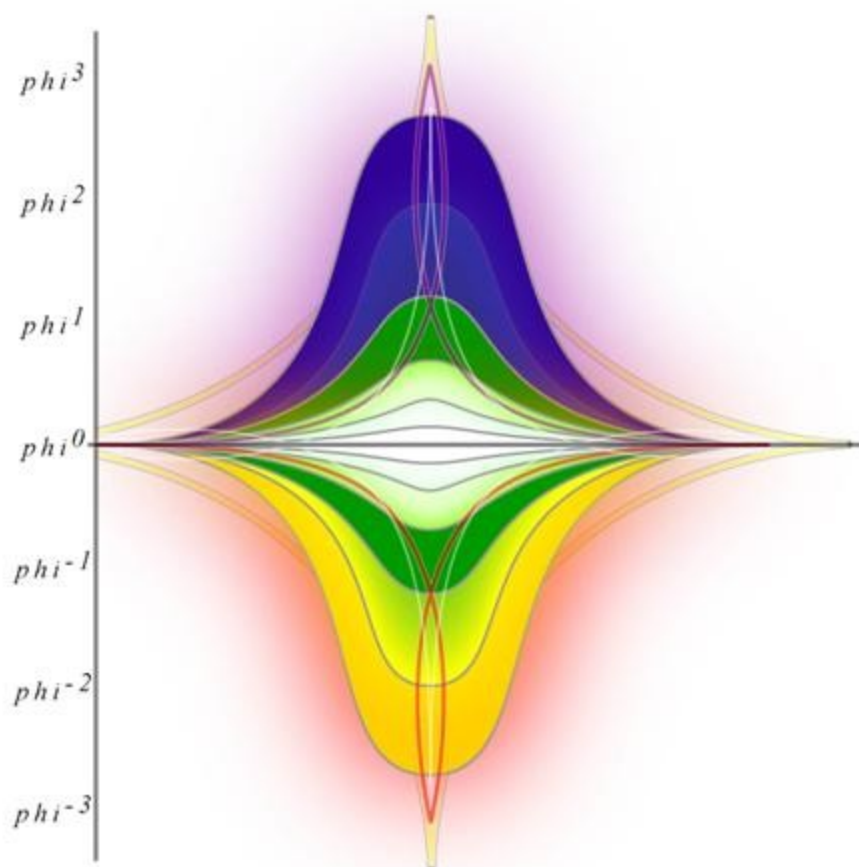


Figure 119: Astral balance

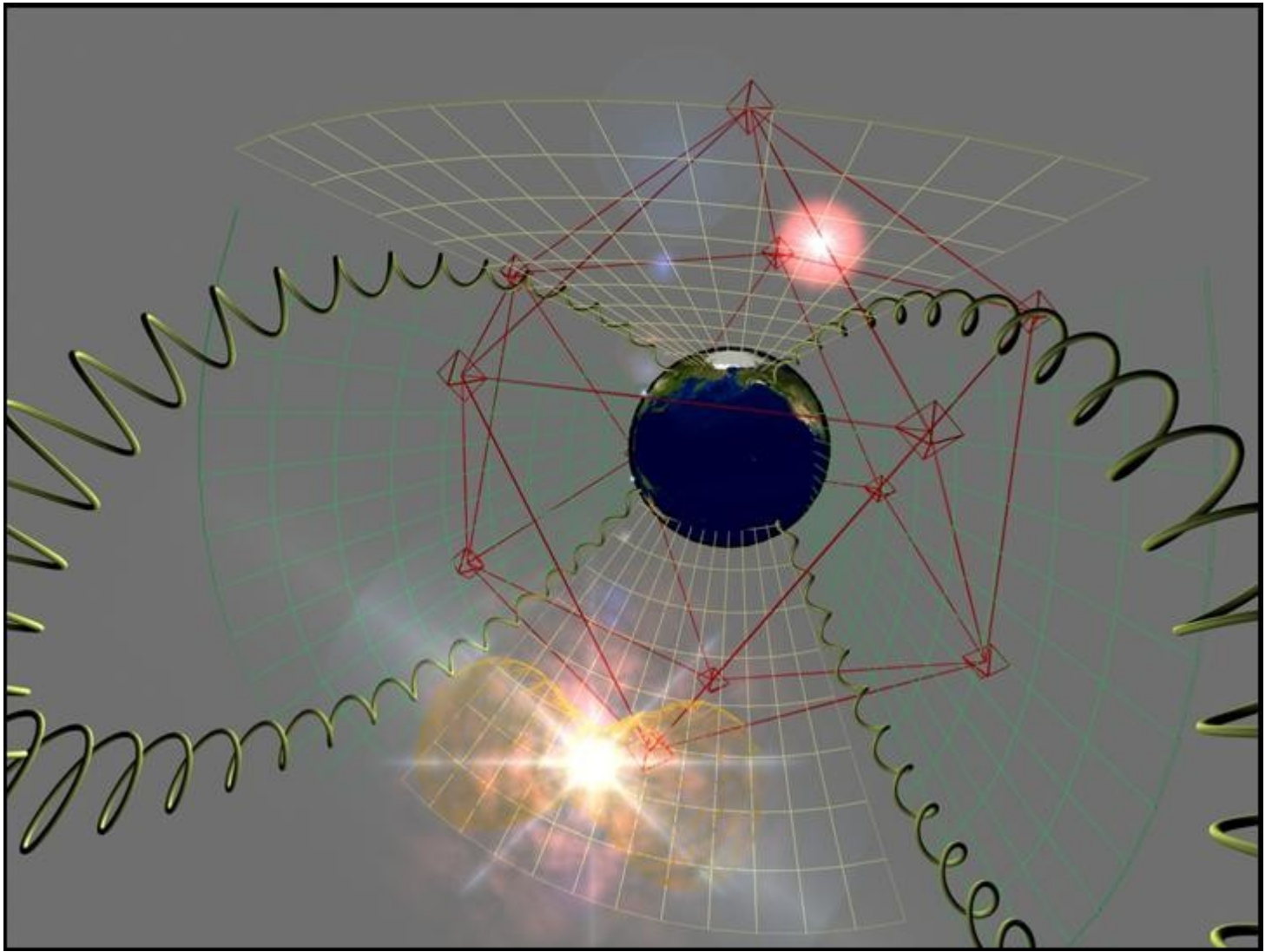


Figure 120: Ascension technology

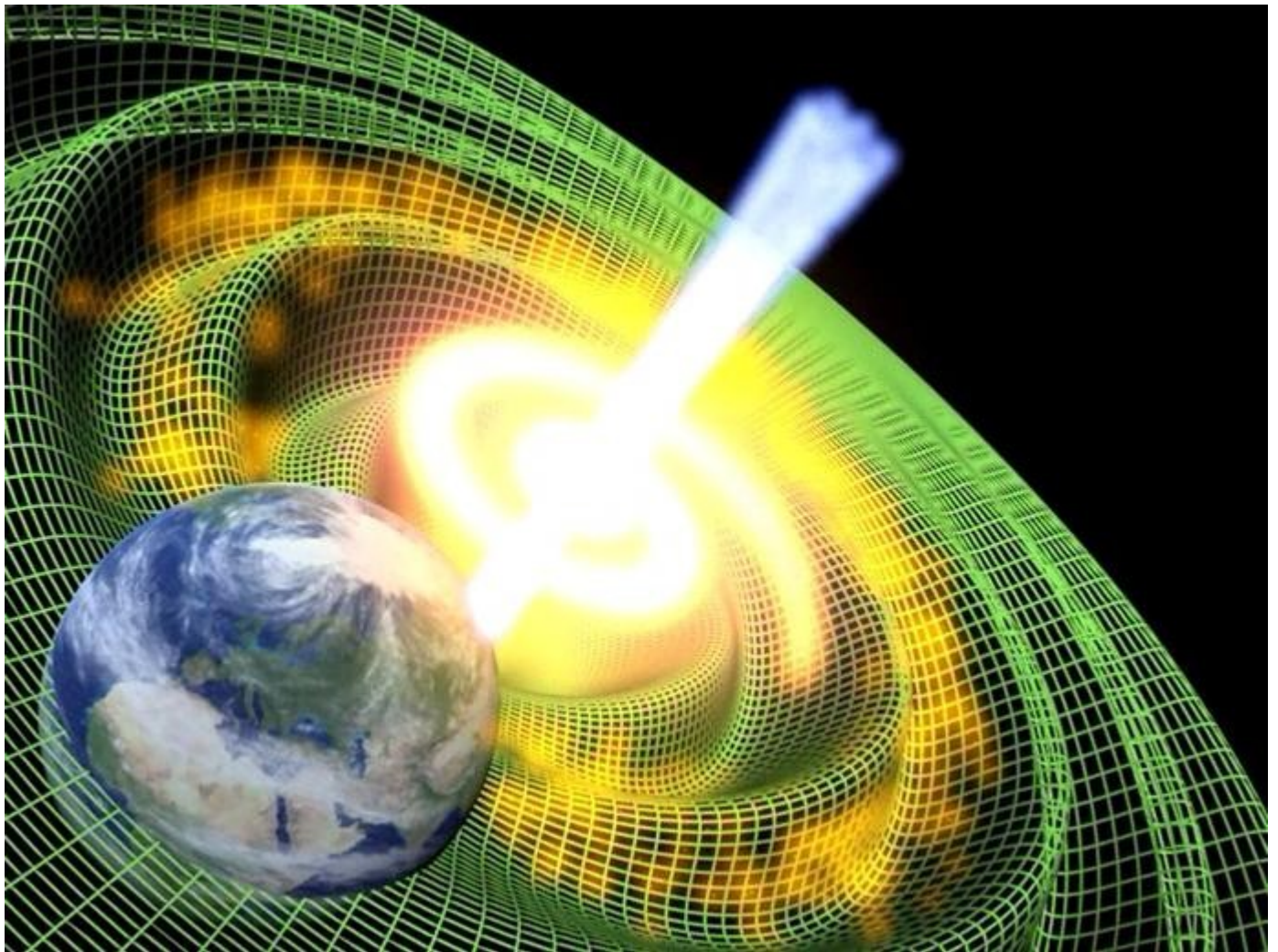


Figure 121: Ascension - the final pulse to multidimensional existence

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