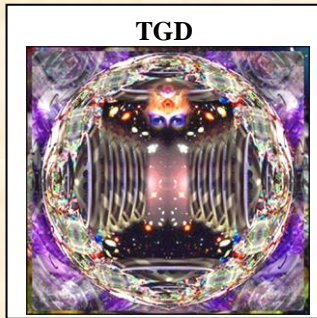


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note: because important websites are frequently "here today but gone tomorrow", the following was archived from http://tgdtheory.com/public_html/freenergy/freenergy.html on 08/04/2010. This is NOT an attempt to divert readers from the aforementioned website. Indeed, the reader should only read this back-up copy if the updated original cannot be found at the original author's site.



TGD and "Fringe" physics

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1. TGD as a Poincare invariant theory of gravitation
2. TGD as a generalization of the hadronic string model
3. Fusion of the 2 approaches via a generalization of the space-time concept

B. The five threads in the development of Quantum-TGD

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C. Birdseye view about the topics of this Book

(the Introduction abstract is archived at [doc](#) [pdf](#) [URL-doc](#) [URL-pdf](#) .

this entire [*i.e., non-abstract*] Introduction(pdf) is archived in great detail at [URL-original](#) [URL-bkup](#))

The contents of the book

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Anomalies Related to the Classical Z^0 Force and Gravitation

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Appendix: Allais effect as manifestation of the Classical Z^0 force?

1. Screening of dark Z^0 MEs emitted by Sun as an explanation of Allais effect?
2. Quantitative picture

[abstract of this Chapter](#)

The TGD-based concept of space-time predicts several new effects.

1. The dark matter associated with **rotating** Macroscopic objects should generate Z^0 magnetic fields. This suggests that the behavior of rotating objects should exhibit anomalies. A special signature of effects of this kind is parity-breaking caused by the parity-breaking couplings of the classical Z^0 field to dark matter.

The Z^0 electric fields generated by astrophysical bodies are predicted to be completely negligible as compared to gravitational fields. But the topological light rays carrying Z^0 fields could induce interactions over Astrophysical distances. Z^0 fields in length scale below the cell size are predicted to be quite strong as compared to gravitation.

2. The mere rotation of a 3-surface carrying magnetic or Z^0 magnetic fields should induce electric or Z^0 electric fields whose divergence gives rise to vacuum charge density. Charge conservation suggests that this gauge flux must flow to a second space-time sheet carrying opposite net charge.
3. In TGD, the time orientation of given space-time sheet need not be the standard one. This allows the possibility of **negative classical energies**. If this kind of space-time sheets are created, energy production with apparent **efficiency greater than unity** becomes possible.

At the space-time sheets with negative time orientations, Classical fields should propagate from Future-to-Past making -- in principle -- possible to see to the Geometric-Future of, say, astrophysical objects. Amazingly, the highly science-fiction notion of negative energy space-time sheet finds support from the basic Classical physics. The total energy associated with the topological field quanta emitted by particle 'a' condensed to larger space-time sheets is the natural geometric correlate of potential energy. Potential energy can be negative only if one allows also negative energy space-time sheets.

4. A further TGD-based element is related to the fact that 3-surface can be regarded as a generalization of point like particle. This means that 3-surface behaves like single coherent whole. In particular, Classical fields oscillating coherently in arbitrary long length scales are possible and can give rise to an apparent propagation of effects with infinite velocity.

The notion of pair creation from vacuum generalizes. For instance, pairs of space-time sheets with vanishing total Classical energy can be created from vacuum.

A. Some gravitational anomalies

1. TGD predicts the possibility of anomalously large time dilation effects due to the warping of space-time surfaces. The experimental findings of Russian physicist Chernobrov about anomalous changes in the rate of flow of Time provide indirect support for this prediction.
2. There are quite puzzling observations related to the behavior of rotating stars. These observations are in a dramatic conflict with the standard wisdom about finite propagation velocity of signals and with the idea that Classical fields propagate in the Future direction only. The possibility of space-time sheets with **negative time orientation** and Classical fields propagating from Geometric-Future to Geometric-Past -- plus the possibility that 3-surfaces of even astrophysical size can behave like particle-like objects -- could explain these mysterious effects.

B. Anomalies related to Z^0 force in Astrophysical-length scales

1. Allais observed that the oscillation plane of Foucault pendulum changes during a Solar eclipse. NASA performed the same experiment during 1999 eclipse. But the processing of the data is still going on.

The presence of the Moon could cause a modification of dark Z^0 laser beams emitted by Sun as synchrotron radiation and modify the contribution of Z^0 electric field to Z^0 force experienced by dark matter component of the pendulum. The effect is predicted to be observed only in the shadow of Moon created by Sun.

Allais has also observed that 24- and 25-hour periodicities in the oscillation of Foucault pendulum can be understood in terms of Earth's modification and the lengthening of the period associated with the Moon's screening due to the rotational motion of Moon around Earth.

2. Shnoll has shown that the **rate distributions for radioactive decays and chemical and biochemical processes do not converge to a single bell curve** but to distributions which have several pronounced peaks. The shapes of the rate curves seem to be similar for widely different reactions (radioactive decays, chemical and biochemical processes). But they fluctuate with time and fluctuation periods correspond to various Astrophysical periods (day, month, year, etc.). These anomalies can be understood if Astrophysical objects emit Z^0 topological light rays interacting with ordinary matter (recall that already nuclei involve dark matter component).
3. p-Adic fractality predicts that dark Z^0 force should become comparable with the gravitational force in cell length scale. Tests of the Newtonian form of gravitational force were recently carried out in length scales 100 μm . There are anomalously large differences related to the measured values of gravitational constant using Cavendish-type experiments or their variants.

In the classical Cavendish experiment, the Z^0 force is effectively eliminated so that most of these discrepancies could be caused by the redistribution of the gravitational flux between space-time sheets.

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the Notion of Free Energy and Many-Sheeted Space-Time Concept

A. Introduction

1. Basic new elements of TGD ontology
2. Could living systems teach us something about energy technology?
3. Various anomalies as support for the picture
4. Free energy anomalies

B. Basic ontology of TGD

1. T(opological) G(eometro)D(ynamics) very briefly
2. Many-sheeted space-time and the notion of field body
3. The hierarchy of Planck constants and of dark matter
4. Zero Energy Ontology

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 3. Universal metabolic quanta
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 - D. Podkletnov effect and Modanese-Podkletnov effect
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Appendix: A generalization of the notion of imbedding space inspired by hierarchy of Planck constants

1. The original view about generalized imbedding space
2. Fractionization of quantum numbers is not possible if only factor spaces are allowed
3. Both covering spaces and factor spaces are possible
4. Do factor spaces and coverings correspond to the two kinds of Jones inclusions?

[abstract of this Chapter](#)

In this chapter, a general vision about new energy technologies provided by the new ontology forced by TGD is discussed. Some evidence for the new ontology is considered. Models explaining some "free energy" anomalies are discussed.

The vision about new energy technology has close connections to the basic mechanisms of energy metabolism in Living matter in the TGD Universe. One cannot avoid reference to the TGD-inspired quantum theory of Consciousness. The point is that so-called "**time mirror**" mechanism defines a mechanism of remote metabolism as sucking of energy from remote energy storage; a mechanism of memory as communications with Geometric-Past; and mechanism of Intentional action initiating neural activity in Geometric-Past.

At the level of technology, the time mirror mechanism would define a mechanism of energy transfer, communication, and remote quantum control.

A. The new ontology

The ontology of the TGD Universe involves several new elements. The notion of many-sheeted space-time means that each physical system corresponds to a space-time sheet (its own sub-universe in geometric sense) and glued to a larger space-time sheet and containing subsystems as smaller space-time sheets glued to it.

Many-sheeted space-time leads to the notion of field body distinguishing between TGD and Maxwell's electrodynamics. One can assign to each physical system a field body (or magnetic body). And in case of Living matter, it acts as an intentional agent using the biological body as a sensory receptor and motor instrument.

Zero Energy Ontology states that any physical system has a vanishing net energy so that everything is creatable from the vacuum. Zero Energy states decompose into positive and negative energy parts. **The possibility of negative energy signals is one important implication.** A considerable modification of Thermodynamics is forced by the fact that different signs of energy correspond to different arrows of Geometric-Time.

Negative energy signals propagating to the Geometric-Past inspire a new vision about communications, energy technology, and remote control. The implications are especially important for the understanding of Living matter where both time directions manifest themselves. In neuroscience, a radically new view about memory based on the notion of a 4-D brain emerges.

The hierarchy of Planck constants implies a generalization of the notions of imbedding space and space-time and Macroscopic quantum coherence in all length and time scales at high enough levels of dark matter hierarchy assigned to the hierarchy of Planck constant. The consequences of this hypothesis are powerful. **The entire Cosmos should be in a well-defined sense a Living System with dark matter representing higher-level conscious entities.**

The original motivation for the p-adic physics were the highly successful calculations of elementary particle masses based on p-adic thermodynamics and conformal invariance. The only sensible interpretation of p-adic physics seems to be as physics of Cognition and Intentionality. Meaning that cognition is present even at the elementary particle level. This implies a profound generalization of space-time concept implying that Cognition and Intentionality are literally Cosmic phenomena but having experimentally measurable correlates in real physics.

B. The new view about energy

The basic idea is that Quantum Biology could teach us a lot about energy technology. The necessity to carry fuel is one of the drawbacks of standard energy technologies. Remote metabolism based on sucking of energy by sending negative energy signals to energy storage analogous to a population-inverted laser defines what might be called "quantum credit card". This is the basic metabolic mechanism of TGD-inspired Quantum Biology. The mechanism could also make sense as an energy technology.

In biological systems, the fuel serves as an energy storage and is recycled. Animal cells burn the fuel and plant cells reconstruct it using sunlight as an energy source. A similar recycling of the fuel could make it unnecessary to carry large amounts of fuel. The systems doing the recycling could be seen as primitive lifeforms. **Plasmoids** are an excellent candidate in this respect. Fuel could be practically any quantum system with 2-or-more states with different energies.

Large Planck constant phases would make it possible to communicate short wavelength photons over long distances -- say, photons with energy of visible photon but having wavelength of EEG photon. This might help to achieve a lossless energy transfer. Topological light rays ("massless extremals") would be in a key role in making possible precisely targeted, dispersion-free, and lossless energy and information transfer. They are ideal also for quantum control.

C. Evidence for new ontology

There are surprisingly many well-established anomalies supporting the new ontology. These anomalies have been a strong guiding line in attempts to construct a general theoretical framework.

1. There is a considerable support for the notion many-sheeted space-time quantified in terms of p-adic length scale hypothesis. One example is the radiation from interstellar dust having no generally accepted interpretation in terms of molecular transitions. The interpretation in terms of metabolic energy quanta liberated in dropping of electrons or protons to larger space-time sheets makes sense quantitatively.
2. The Bohr quantization of radii of planetary orbits and quantal effects of ELF EM fields on vertebrate brain helped considerably to develop the ideas about the hierarchy of Planck constants. Later, a lot of further anomalies have emerged supporting the quantization of Planck constant.
3. Living matter is a gigantic bundle of anomalies from the point-of-view of recent-day physics. The notion of "field body" combined with p-adic length scale hypothesis allows us to develop detailed models for how the magnetic body controls the biological body and receives sensory input from it. The notion of field body leads also to a concrete model for pre-biotic life based on the notion of the plasmoid involving magnetic body controlling plasma phase. Recently a considerable empirical support for this notion has emerged.

D. Podkletnov- and Modanese-Podkletnov effects

The explanation of the Modanese-Podkletnov effect shares many common elements with the model of the Podkletnov effect and actually led to the correct track allowing to eliminate competing models.

The "dropping" of electrons to the space-time sheets of topological light rays emitted by a critical system would be the key mechanism besides rotation induced charging. During the discharge of the capacitor (Modanese-Podkletnov effect), this mechanism would induce the motion of test penduli. In the case of a superconductor making repeatedly a transition to a non-superconducting state (i.e., the Podkletnov effect), this mechanism would induce the motion of air above the superconductor and cause an apparent loss of weight of the test particles.

The Biefeld-Brown effect associated with "lifters" and corona wind can be explained by the same mechanism as Modanese-Podkletnov effect. Podkletnov effect is enhanced by the EM and Z^0 charging induced by rotation and thus also involves the EM and Z^0 variants of the Searl effect.

E. Over-unity effects

Over-unity effects are the basic claim of the "free energy" research community. TGD indeed allows temporary over-unity effects.

The basic mechanism is the dropping of particles on larger space-time sheets liberating Zero-Point kinetic energy appearing as a basic metabolic mechanism in TGD-inspired theory of Living systems. This mechanism does not allow a perpetuum mobile. The particles must be kicked back to the smaller space-time sheets. In the ordinary Living matter, solar radiation takes care of this.

There are also anomalies associated with the dissociation of water and hydrogen molecules. The hydrino atom concept of Mills is also closely related to these anomalies and the TGD-based justification for the notion is discussed in this chapter.

(this entire [*i.e.*, *non-abstract*] Chapter(pdf) is archived in great detail at [URL-original](#) [URL-bkup](#))

about Strange Effects related to Rotating Magnetic Systems

A. Introduction

1. Anomalies associated with rotating magnetic systems
2. Possible other similar systems

B. Summary about the New Physics effects predicted by TGD

1. The new view about the relationship between gravitational and inertial energy
2. Generalized four-wave mechanism as a basic mechanism of remote metabolism
3. The classical Z^0 fields as TGD counterpart for torsion fields
4. Gravitational anomalies and many-sheeted space-time
5. Questions related to the vacuum charge densities associated with rotating systems

C. About strange effects related to rotating magnetic systems

1. The experiment, the observed effects, and their interpretation in TGD framework
2. The electric fields associated with rotating magnetic fields
3. A Classical model for the weight change and spontaneous acceleration involving only EM and Z^0 fields and the Faraday effect
4. The role of the material composition of the system
5. Magnetic fields associated with the Searl device
6. Remote energy and angular momentum transfer in rotating magnetic systems
7. Connection with the dark matter hierarchy
8. A general catastrophe theoretic model for the spontaneous acceleration
9. Discussion

D. Effects related to Searl effect

1. N-machine of DePalma and space-energy generator of Tewari
2. Some anomalies related to the behavior of spinning systems

E. Project Flyaway and Searl effect

1. Description of the device
2. About the bi-filar coils
3. Trying to explain the claimed effects

Appendix

1. Some general facts about classical solutions of field equations
2. Could spontaneous acceleration be due to the change of inertial mass?

[abstract of this Chapter](#)

In this chapter, the anomalies claimed to be associated with **rotating magnetic systems** are discussed in TGD-based conceptual framework.

A. The anomalies associated with rotating magnetic systems

In the beginning of the year 2002, I learned about strange effects related to rotating magnetic systems. The model for these effects has evolved (and is still evolving) gradually during the year 2002 via the trial&error process. Several new physics effects seem to be involved.

1. The rotating magnetic system develops EM and Z^0 charges and experiences the classical EM and Z^0 electric forces created by Earth so that the effective weight is reduced or increased (depending on the direction of rotation) as much as 35 percent.

The charging is due to the flow of electrons and possibly also neutrinos from the rolling magnets to the surrounding air induced by the radial electric and Z^0 electric fields generated by the Faraday effect inducing vacuum charge density (not possible in Maxwell's electrodynamics). The fact that critical frequencies are different for clockwise and counter clockwise spontaneous rotation implies that classical Z^0 force and neutrino currents must be present.

2. The spontaneous accelerating rotation above critical frequency can be understood as being to a Lorentz torque acting on the radial Ohmic EM and Z^0 currents in rollers and roller ring. Above the critical frequency, the Lorentz torque (which is proportional to rotation frequency) becomes larger than frictional torque and spontaneous accelerating rotation becomes possible due to the positive feedback.

Energetic constraints imply negative feedback. The modeling of this "back reaction" leads to a model of the system based on butterfly catastrophe in Thom's classification of elementary catastrophes and allowing also to understand the effect of the load. Rather precise estimates for the parameters result and allow us to quantify the role of the classical Z^0 force.

3. The radial ohmic current of electrons leaking from the atomic space-time sheets of rollers to the space-time sheet of environment explains the presence of plasma around the system. The ionization of the molecules is caused by the electrons from rollers gaining keV energy as they drop from atomic space-time sheets of rollers to the space-time sheets of the environment.
4. The Zero-Point kinetic energy liberated in the dropping of electrons serves as the energy source making the system an energy source. For instance, the emitted photon carrying Zero-Point kinetic energy can be absorbed by the atom in the uppermost layer. This allows also us to transfer the angular momentum gained by the conduction electron current to the roller so that accelerated rotation results.

A remote metabolism based on the emission of negative energy (phase conjugate) dark microwave photons absorbed by the dropping electrons is the simplest mechanism providing energy for the magnetic walls and for electrons in collective cyclotron states. Also the remote transfer of angular momentum and remote spontaneous magnetization can be considered.

5. The latest progress relates to the understanding of the role of material decomposition of the Searl device (layered Nd-nylon-Fe-Ti structure).

The model of the current flow equilibrium for the 4-layered cylindrical structure gives detailed quantitative picture about how charge accumulates in the interiors of layers and to the layer-layer boundaries emerges. The key finding is that the small electrical conductivity of air

requires in the flow equilibrium that the electric field at the outer boundary of the Titanium layer is amplified by a factor of order 10^8 to a field which is by a factor of order 10^3 higher than the critical field inducing dielectric breakdown in air so that the simple model fails.

The huge increase of the electric field requires an accumulation of positive charge at the Ti-air boundary and explains why the air must be ionized but not its mechanism based on the dropping of electrons to larger space-time sheets.

The 4-layered structure is also used for the stator. This can be understood if the magnetic field of stator also rotates as is suggested by the fact that its return flux goes through the rollers. The rotation of the stator magnetic field leads to a simple model for the classical behavior of the roller system as a dynamical equilibrium in which the electrostatic torque generated by the rotation of the stator and roller charge distributions induced by Lorentz torque on conduction electrons vanishes as rollers rotate with the same velocity as the charge distribution in the stator.

6. The formation of the magnetic walls means the emergence of long-length scale fluctuations with coherence length much longer than the size of the system. Hence a quantum critical phenomenon seems to be in question. **This could explain why the replication of the experimental findings has turned out to be so difficult.**

There are indeed many conditions to be satisfied. The distance between magnetic walls must correspond to the radius of the stator in resonance. This length scale also corresponds to the wavelength of dark microwave photons emitted in cyclotron transitions. The energy of these photons must also correspond to a Zero-Point kinetic energy liberated as electron drops to larger space-time sheet. The requirement that liberated Zero-Point kinetic energy in the dropping of electron corresponds to the ionization energy of titanium atom for $n=3$ valence electron also makes the phenomenon quantum critical.

B. Other anomalies involving the Searl effect

The functioning of Tewari's space-energy generator and N-machine of DePalma can be understood as being based on same principles as the functioning of Searl device.

Also, other anomalies associated with spinning systems could be understood along similar lines. The model for Searl device seems to have caught something essential.

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Also see [this](#) and the excerpted [paper](#) (which is also archived at [doc](#) [pdf](#) [URL-doc](#) [URL-pdf](#))

did Tesla discover the Mechanism changing the Arrow of Time?

A. Introduction

B. Discussion of the basic concepts and ideas

1. Do negative energy space-time sheets have counterparts in Quantum Field Theory?
2. Pulses, Tesla transformers, and binary coils
3. Could negative energy photons induce transition to effective superconductivity?

- C. The scalar waves of Tesla in TGD framework
 1. The properties of the scalar waves
 2. Could non-linearity of TGD allow scalar waves?
 3. Lowest order solution ansatz
 4. First order corrections to the solution ansatz
 5. Properties of the solution ansatz
 6. More general solutions representing electric field of constant action density are possible
 7. Support for Tesla's scalar waves/ Z^0 MEs

- D. Does the model explain the observations of Tesla?
 1. Switching the current on as time reversal for switching the current off
 2. Do scalar wave pulses appear also outside the circuits?
 3. Why the radiation observed by Tesla was so difficult to detect using photography?
 4. How Tesla transformer manages to yield so high voltage amplification?
 5. Why no current was observed in the secondaries of Tesla transformers?

- E. Super-luminal velocities, massless extremals, and quantum jumps between quantum histories
 1. General model for super-luminal velocities
 2. Quantitative model
 3. Possible technological implications

- F. Figures and Illustrations

[StealthSkater note: more on the alleged use of suppressed Tesla technology -- and specifically about how he was rumored to have used electric&magnetic fields to cause an object to retrace its history path -- is at the "PX#Chica" page at => [doc](#) [pdf](#) [URL](#)]

[abstract of this Chapter](#)

Negative energy topological light (phase conjugate laser waves) rays provide the fundamental control mechanism in the TGD-based model of Living matter and appears in practically every mechanism of Consciousness as a basic step. This is, however, not yet the whole story.

One should also identify mechanisms allowing to control the generation of the negative energy topological light rays. Direct transformation of p-adic MEs to negative energy MEs is probably not enough.

The solution to the problem came from quite an unexpected direction. It was the attempt to understand the physics behind the visions of Tesla which led to an identification of a very general mechanism of this kind.

I had already earlier discovered that Tesla's **scalar wave pulses** can be realized as solutions of field equations in TGD framework. But the physical interpretation had remained obscure. **[StealthSkater note: more of Tesla's longitudinal scalar waves has been archived on the "Bearden" page at => [doc](#) [pdf](#) [URL](#)]**

In this chapter, the general vision allowing to understand the findings of Tesla and others relating to binary coils and Tesla transformers are discussed. **The basic idea is that the rapid acceleration of charges induced by scalar wave pulses induces generation of negative energy topological light rays as time-reversed counterpart of *brehmstrahlung*.**

The solutions of field equations describing Tesla's scalar wave pulses are discussed first. Various strange findings of Tesla are discussed at a general level using the resulting overall picture. The chapter ends with the model for the **causal anomalies observed in the tunneling of photons** through potential barriers.

(this entire [*i.e.*, non-abstract] Chapter(pdf) is archived in great detail at [URL-original](#) [URL-bkup](#))

UFOs, Aliens, and New Physics

A. Introduction

B. Basic vision

1. Quantum-Classical correspondence
2. Classical physics as exact part of Quantum Theory
3. p-Adic physics as physics of Cognition and Intentionality
4. The core ideas of TGD-inspired theory of Consciousness and Quantum Biology

C. TGD-based view about Life

1. The notion of magnetic body
2. Time mirror mechanism as a fundamental mechanism transforming intentions to actions
3. Applications of time mirror mechanism
4. Vision about the evolution of life
5. Could simple lifeforms be induced by intentional action?

D. How an advanced civilization could study Cosmos

1. Why space travel is not a good idea
2. Time mirror mechanism as an ideal tool for the study of the Universe
3. What *aliens* are?
4. Have more advanced civilizations performed genetic engineering at Earth?
5. Fermi paradox
6. Dark matter hierarchy as a solution of Fermi paradox?

E. What UFOs are

1. UFOs as plasmoids?
2. UFOs made of copper and steel?
3. Are flying saucers necessarily living systems?

F. Figures and Illustrations

[abstract of this Chapter](#)

The TGD-based view about space-time, time, and Consciousness also allows us to develop ideas about UFOs and *aliens*. In particular, about possible manners by which highly-developed civilizations could receive information about remote parts of the Universe. And to get contact with other civilizations.

The time mirror mechanism is a basic mechanism in the TGD-inspired theory of Consciousness. It also has technological applications including instantaneous remote sensing of

the Geometric-Past, communications with the Geometric-Past, and instantaneous remote utilization of energy.

The TGD-based explanation for the experimental results of William A. Tiller about intentionally-imprinted electric devices (inducing what he calls "conditioning" of simple target systems) suggests that the time mirror mechanism might even make possible remote induction of simple lifeforms (about which the simplest are perhaps plasmoids). The intelligent-looking **light balls** reported repeatedly by UFO experiencers are indeed identifiable as plasmoids. And quite recent experimental findings demonstrate that plasmoids satisfy the basic criteria justifying their identification as simple lifeforms.

The resulting vision about highly-developed lifeforms and about how they could study the Cosmos allows us to resolve Fermi paradox summarized by the simple question "Where are they all?" and reflecting in excellent manner our misguided view about Life, Consciousness, and Physics.

TGD also suggests a mechanism making it possible to reduce gravitational and inertial masses of spaceships so that they would behave like a very light system as observations indeed suggest. Plasmoids could be living spaceships able to draw their energy from environment by the time mirror mechanism.

It seems, however, that the highly-developed civilizations would probably not see the trouble to travel to distant galaxies since it is un-necessary. And the finiteness of light velocity in any case would pose very strong limitations on what they could achieve in this manner. **[StealthSkater note: more on plasma lifeforms is on the "UFO#Plasmoids" page at => [doc](#) [pdf](#) [URL](#)]**

The Chilbolton and Crabwood crop circles can be interpreted as messages telling basic facts about the civilization responsible for their construction. The Chilbolton message is constructed using the same format as Arecibo message and tells that Earth, Mars, and Jupiter are colonized. These crop circles strongly suggest the existence of intra-terrestrial life. This inspired a model for pre-biotic evolution allowing also a model for the evolution of the Genetic Code.

The highly-advanced civilization could be identified as either intelligent intra-terrestrials **or as ourselves in the Geometric-Future** using a technology based on the time mirror mechanism to construct crop circles and using less intelligent intra-terrestrial plasmoids to construct the crop circles.

The Sun is depicted to have a smaller size in the Arecibo message. And the Crabwood message came one year and one day after the Chilbolton message. These hints allow us to make an estimate about the temporal distance of this civilization of the Geometric-Future from us. **[StealthSkater note: one of alleged Area-51/S4 biologist Dan Burisch's premises was that the ETs were what we became in the far Future and were returning in time machines (not spaceships as initially thought) to repair damage done to quantum timelines (see the "Burisch" page at => [doc](#) [pdf](#) [URL](#)). A similar theme also appeared in the "Montauk Project" folklore which said that tinkering with time left us in what would appear to be an irreversible time loop.]**

The "sacred geometry" of crop circles involving ratios of simple rational numbers, simple algebraic numbers (in particular Golden Mean), and π could be an attempt to tell us about the crucial importance of rational numbers and finite-dimensional extensions of p-adic numbers for Cognition. If entanglement probabilities belong to an extension of rationals defining a finite-dimensional extension of p-adic numbers, one can assign to entanglement a positive information measure as a number theoretic modification of Shannon's entropy. The interpretation as bound state entanglement crucial for Macro-temporal quantum coherence is possible.

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Appendix

- A. Basic properties of CP_2
 - 1. CP_2 as a manifold
 - 2. Metric and Kähler structures of CP_2
 - 3. Spinors in CP_2
 - 4. Geodesic sub-manifolds of CP_2

- B. CP_2 geometry and standard model symmetries
 - 1. Identification of the electro-weak couplings
 - 2. Discrete symmetries

- C. Basic facts about induced gauge fields
 - 1. Induced gauge fields for space-times for which CP_2 projection is a geodesic sphere
 - 2. Space-time surfaces with vanishing EM, Z^0 , or Kähler fields

- D. p-Adic numbers and TGD
 - 1. p-Adic number fields
 - 2. Canonical correspondence between p-adic and real numbers

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