

## Article

# Why Information Molecules Containing Aromatic Rings Should Be so Important?

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## Abstract

The basic message in the book, "Inner paths to outer space: Journeys to Alien Worlds through Psychedelics and Other Spiritual Technics", written by Rick Strassman et al, is that psychedelics might make possible instantaneous remote communications with distant parts of the Universe. The objection would be that light velocity sets stringent limits on classical communications. In TGD framework this argument does not apply. In this article a model for remote mental interactions is constructed using basic notions of TGD inspired quantum biology such as magnetic body, dark photons and Zero Energy Ontology.

Further, both psychedelics and DNA contain aromatic rings. Each base-pair would contain  $1+2+1+1=5$  (two rings from sugars) aromatic rings and longer DNA sequences would define larger conscious entities. Of course, all proteins contain these aromatic rings possibly integrating by flux tube connections to larger conscious entities. In this picture it would not be surprising of the basic information molecules would also involve aromatic rings.

## 1 Introduction

There is a book about psychedelics titled as "Inner paths to outer space: Journeys to Alien Worlds through Psychedelics and Other Spiritual Technics" written by Rick Strassman, Slawek Wojtowicz, Luis Eduardo Luna and Ede Frecska [1]. The basic message of the book is that psychedelics might make possible instantaneous remote communications with distant parts of the Universe. The basic objection is that light velocity sets stringent limits on classical communications. In TGD framework this argument does not apply. Second objection is that the communications require huge amount of energy unless they are precisely targeted. The third objection is that quantum coherence in very long, even astrophysical scales is required. In TGD framework these objections do not apply.

In Zero Energy Ontology (ZEO) communications in both directions of geometric time are possible and kind of time-like zig-zag curves make possible apparent superluminal velocities. Negentropic quantum entanglement provides second manner to share mental images, say sensory information remotely. The proposed model leads to a general idea that the attachment of information molecules such as neurotransmitters and psychedelics to a receptor as a manner to induce a remote connection involving transfer of dark photons signals in both directions of geometric time to arbitrarily long distances. The formation of magnetic flux tube contact is a prerequisite for the connection having interpretation as direct attention or sense of presence. One can see living organisms as systems continually trying to build this kind of connections created by a reconnection of U-shaped flux tubes serving as magnetic tentacles.

The natural TGD inspired hypothesis about what happens at the level of brain to be discussed in sequel in detail goes as follows.

1. Psychedelics bind to the same receptors as the neurotransmitters with similar aromatic rings (weaker assumption is that neurotransmitters in question possess aromatic rings). This is presumably consistent with the standard explanation of the effect of classical psychedelics as a modification of serotonin uptake. This binding replaces the flux tube connection via neurotransmitter to some part of the personal magnetic body with a connection via psychedelic to some other system, which might

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be even in outer space. A communication line is created making among other things possible remote sensory experiences.

Magnetic fields extending to arbitrary large distances in Maxwell's theory are replaced with flux tubes in TGD framework. The magnetic bodies of psychedelics would carry very weak magnetic fields and would have very large  $h_{eff}$  - maybe serving as a kind of intelligence quotient.

2. This would be like replacing the connection to the nearby computer server with a connection to a server at the other side of the globe. This would affect the usual function of transmitter and possibly induce negative side effects. Clearly, TGD inspired hypothesis gives for the psychedelics much more active role than standard hypothesis. This mechanism could be a universal mechanism of remote mental interactions.
3. Psychedelics can be classified into two groups depending on whether they contain derivative of amino-acid trp with two aromatic rings or phe with one aromatic ring. Also DNA nucleotide resp. its conjugate have 2 resp. 1 similar aromatic rings. This suggests that the coupling between information molecule and receptor is universal and same as the coupling between the two bases in DNA double strand and consists of hydrogen bonds. This hypothesis is testable since it requires that the trp:s/phe:s of the information molecule can be brought to same positions as phe:s/trp:s in the receptor. If also protein folding relies on this coupling, one might be able to predict the folding to a high degree.
4. A highly suggestive idea is that molecules with aromatic rings are fundamental conscious entities at the level of molecular biology, and that more complex conscious entities are created from them by reconnection of flux tubes. DNA/RNA sequences and microtubules would be basic examples about this architecture of consciousness. If so, protein folding would be dictated by the formation trp-phe contacts giving rise to larger conscious entities.

I have published the material of the article for about two years ago at my homepage in the chapter [2] of "TGD Based View about Consciousness, Living Matter, and Remote Mental Interactions" and this article written for about one year ago is revised.

## 2 Some background about psychedelics

Psychoactive drugs can be classified into three basic types. Some raise the activity level (excitation), some calm down (inhibition), and some change the character of consciousness profoundly. Psychedelics/hallucinogens [1] belong to the third group. Psychedelics (such as psilocin, psilocybin, DMT, LSD) containing aromatic rings and many of them (such as psilocin, psilocybin, DMT) attach to serotonin receptors.

As the official term "hallucinogens" implies, psychedelic induced experiences are regarded as hallucinations in the materialistic world view although the denial of the reality of subjective experiences themselves requires a really hard-nosed skeptic. The title of the book reveals that the question posed in the book is whether these experiences could be about real world, kind of sensory input from distant parts of the Universe. The indigenous people using ayahuasca and similar psychedelics have regarded these experiences involving meeting of representatives of other civilizations as perceptions about real worlds. Also Terence and Dennis McKenna, who are pioneers of systematic study of the effects of various psychedelics, shared this view. In the materialistic ontology of standard physics this kind of interpretation is of course excluded. That hallucinations are in question is "obvious", too obvious actually!

The classical psychedelics are psilocin and psilocybin contained by mushrooms, DMT found in ayahuasca, and mescaline found in peyote cactus. DMT is an endogenous psychedelic and there is pumping of DMT through blood-brain barrier so that DMT could have important brain function.

The aromatic ring structures of psychedelics and neurotransmitters involved provide a more concrete view about the situation.

1. Classical psychedelics are derivatives of two basic chemical groups: tryptamine and phenethylamine which in turn derive from the amino-acids trp and phe.
2. Trp is characterized by pair of aromatic rings (6-cycle and 5-cycle). Psychedelic psilocin, psilocybin, DMT have 2 aromatic rings. Neurotransmitter serotonin has also two aromatic rings.
3. Phe has single aromatic ring (6-cycle). Psychedelic mescaline has single aromatic ring. Neurotransmitters dopamine and norepinephrine have one aromatic ring. Note that both serotonin, dopamine, and norepinephrine are associated with mood disorders: clearly control in long time scales is in question, which in TGD framework suggests very large size scales for the parts of magnetic body involved.
4. Remarkably, DNA and RNA nucleotides can be classified to those with two aromatic rings (pyrimidines A and G) and their conjugates with one aromatic ring (purines C, T and U). Note that also his and tyr are amino-acids with single aromatic ring. Information molecules involve often aromatic rings. For instance, hormones involve often complex rings structures. Also hydrophobic second messengers (such as cAMP) involve aromatic rings.
5. LSD, which is synthetic psychedelic, has 3 6-rings and one 5-ring.
6. The classification of the neurotransmitter receptors provides further insights. They are classified into two groups. Ligand gated receptors can be excited and inhibited by certain neural transmitters. G-protein coupled receptors modulate the actions of excitatory (glutamate, aspartate) and inhibitory neural transmitters (GABA, glycine). Most neural transmitters bind to G-protein coupled receptors and this is true for classical psychedelics and for serotonin, dopamine, and norepinephrine. The first guess is that the presence of aromatic rings determines the character of the transmitter receptor pair and that G-protein coupled receptors having aromatic rings are above ligand gated receptors in the hierarchy and control them. They would correspond to two different levels in the hierarchy of magnetic bodies. Note that also LSD binds to G-protein receptors.

According to the book [1], pineal gland might be in a special role concerning psychedelics.

1. Pineal gland is the only nucleus of brain, which does not appear as left-right pair: this suggests that its functions relate to a control of the entire brain in long time scales. Descartes regarded pineal gland as the seat of soul. Pineal gland is also known as “third eye” and in lower species it indeed serves the function of eye.
2. Pineal gland is responsible for the production of melatonin: the production rate varies with a circadian rhythm. Melatonin is a serotonin derived hormone and therefore has 2 aromatic rings: this suggests that the amount of serotonin is higher in pineal gland than elsewhere in brain. Melatonin helps in sleep disorders and affects also other parts of brain. One can ask whether melatonin is involved with establishing of distant flux tube connections during sleep - not only in pineal gland but also in other parts of brain - and whether these connections are built up during sleep.
3. There is some evidence that pineal gland can produce DMT from tryptamine *believed* to be released during dreaming, during spiritual and mystical experiences, and during the time of death. Taking the title of the book seriously, one can ask whether this eye is able to see also to cosmic distances possibly using large  $h_{eff}$  photons and whether DMT is involved.

### 3 Could instantaneous communications in cosmic scales be possible in TGD Universe?

In TGD inspired ontology the notion of magnetic body with astrophysical, galactic or even super-galactic size changes the situation completely. The basic communication tool would be touch of magnetic bodies

generating reconnections and making possible signalling from the biological body to the member of distant civilization. The perception of the biological body of alien would differ in no manner from that of my neighbor since the mechanisms would be the same as involved with the transfer of sensory data to my personal magnetic body and control commands from there to biological body (at least through genome).

The basic objection against the possibility suggested by the title of the book is that finite light velocity poses absolute upper bound for the distance of objects with it is possible to be in contact during “trip”. One must be however very cautious here: the assumption that signals propagate only to singlet direction of time is essential also and derives from classical thermodynamics. In TGD framework second law continues to hold true but the arrow of geometric time for zero energy states changes in each state function reduction occurring to the either boundary of CD. Hence instantaneous communications (“remote seeing”!) using reflection in time direction become possible even over cosmological distances and define among other things the mechanism of memory in TGD Universe.

Time consuming and expensive space travel would become un-necessary: our magnetic body giving us cosmic size together with zero energy ontology making possible instantaneous “seeing” of both future and past by reflection of photons in time direction would be enough. Memory and anticipation would be basic examples about seeing in time direction. This view would also resolve Fermi paradox. We could be actually in a continual contact with the distant civilizations but without realizing it. One can ask whether similar contacts could take place in psychedelic induced experiences. Memories and future plans would be examples of “seeing” in time direction. The continual re-creation of the Universe by quantum jumps would of course mean that the actual future/past need not be same as those which are “seen”. Shamans identify various plants as conscious entities teaching them - in TGD framework this would translate to magnetic bodies of representatives of distant civilizations remotely teaching the representatives of more primitive civilizations.

What is the precise meaning of the catchy phrases “communications with geometric past/future”, “time reflection”, and “seeing in time direction”.

1. The recent view about state function reduction in Zero Energy Ontology leads to a precise identification of self as conscious entity. Self corresponds to a sequence of state function reductions leaving the passive boundary of causal diamond (CD) invariant and also Zero energy states correspond to superpositions of state pairs at opposite boundaries of CD. State function reduction leaves the member of the state pair at either boundary of CD (call it passive boundary) invariant - this is the counterpart of Zeno effect.

In the analog of unitary evolution following each reduction the position of active boundary is shifted to geometric future and the state at it is changed. This is the counterpart of unitary time evolution at active boundary. The increase of the temporal distance between the tips of CD gives rise to the experienced flow of time. Negentropy Maximization Principle (NMP) eventually forces the first reduction to the opposite boundary of CD: self dies and re-incarnates at the opposite boundary and growth of the CD continues at opposite direction. The new self has arrow of time opposite that for the old one. The first state function reduction generates negentropic entanglement and can increase the value of  $h_{eff}$  so that evolution becomes possible.

2. In this framework geometric memories correspond naturally to time reversed sub-selves defining mental images. The space-time region (active boundary of CD) wherefrom they receive sensory information is indeed in geometric past of the self so that the interpretation as episodal memory makes sense. Also classical communications are naturally associated with sub-self and its time reversal. Note that precognition is memory from the point of time-reversed self. During sleep we precognize our geometric future.

Consider now communications with distant objects in this framework.

1. Negative energy signal would mean death of sub-self representing mental images and its re-incarnation in the geometric past accompanied by negative energy signals received by the new sub-self. The death

of the time-reversed sub-self generates a sub-self with original arrow of time receiving the accompanying positive energy signal. The dying sub-self sends a signal received by its re-incarnation!

2. Communications with distant parts of the cosmos would be experiencing the time reversals of one's own mental images! We would be quite literally cosmic entities. Study of cosmos would be study of our own minds. In this situation mind is only conscious about itself. If Mind is conscious about other Mind it must fuse with it to single Mind by generating negentropic entanglement, otherwise it has no experience about other Mind. As far conscious experience is involved, there is only one Mind. This is the TGD analog for One Mind theory and is able to avoid the paradox.

If the sub-self representing self model dies as one falls in sleep and re-incarnates as its own time reversal at the opposite boundary of CD, sleep could involve communications with distant parts of the Universe. Pineal gland generating DMT could play a key role in this process.

## 4 The role of magnetic body in communications

The first key idea is that molecules with aromatic rings are basic conscious entities at the level of biomolecules. Second key idea is that psychedelic-receptor complex serves as a plug-in to cosmic internet.

### 4.1 Why information molecules containing aromatic rings should be so important?

I have considered the question of the title in [3]. The basis idea is that aromatic ring can carry the analog of supra-current as electron pair and this current generates a dipole magnetic field represented as flux tubes around the ring. This makes molecules with aromatic rings basic conscious entities in living matter. The flux tubes can carry dark matter and if there are several molecules with aromatic rings near each other, reconnections can take place and give rise to larger structures with building bricks connected by pairs of flux tubes carrying supra currents and dark cyclotron photon signals.

DNA would be the fundamental structure of this kind. Each base-pair would contain  $1+2+1+1=5$  (two rings from sugars) aromatic rings and longer DNA sequences would define larger conscious entities. Microtubules contain also aromatic rings assignable to 2 amino-acids phe and trp appearing in the tubulin molecules. Of course, all proteins contain these aromatic rings possibly integrating by flux tube connections to larger conscious entities. In this picture it would not be surprising of the basic information molecules would also involve aromatic rings.

DNA letters A,G and their conjugates T,C have the ring structures of trp and phe respectively and base pairs in the double DNA strand correspond to trp and phe ring structures connected by hydrogen bonds. Could the information molecule-receptor protein coupling rely on similar couplings with trp and phe playing the role of fundamental plugs. This hypothesis predicts that more complex information molecule-receptor pairs should have geometries in which trp:s and phe:s can meet each other naturally. Also protein folding could involve similar trp-phe self-couplings by hydrogen bonds determining the folding to a considerable degree. Protein folding would be determined basically by the generation of negentropic entanglement dictated by NMP and its understanding would require quantum theory of consciousness.

### 4.2 Neurotransmitter receptor complex as plug-in to cosmic internet and a new perspective on remote seeing

If one - just for fun - takes seriously the claims of shamans, one must ask whether our brain has well developed tools available for building contacts with distant civilizations and what these tools might be. The receptors of neural transmitters are obviously the natural candidates for the pathways to cosmos. In the case of neural transmitters these would serve as pathways to the personal magnetic body (with onion-like structure). Neural transmitters could be however replaced with psychedelics if they have a

geometric structure allowing a binding to the corresponding receptors. If psychedelics have flux tube connections to very distant parts of the Universe, a connection is generated.

1. One can argue that evolutionary pressures have forced living matter to develop highly standardized connections to various parts of the personal magnetic body and possibly also other magnetic bodies. Personal magnetic body has astrophysical size and EEG frequencies would correspond to communications in Earth size scale. Receptors serving as Josephson junctions emitting Josephson radiation with frequency characterised by  $h_{eff}$  are natural candidates for plug-ins.
2. The model for cell membrane as Josephson junction leads at the microscopic level to the view that the proteins associated with various ion pumps, channels, and receptors (of also neurotransmitters in postsynaptic junction) define Josephson junctions to which magnetic flux tubes are associated and characterized by local value of Josephson frequency, that is membrane potential and Planck constant  $h_{eff}$ . As the information molecule is attached to a receptor, a connection to some part of the some magnetic body would be generated and split as the molecule is not present. These connections are possible in the scale cell, organelle, organ, organism, population and maybe even in the scale of cosmos. Psychedelics affect serotonin receptors so that serotonin spends longer time in receptor.
3. The simplest picture is that the connection corresponds to a pair of flux tubes. As the connection is broken, the pair has suffered reconnection cutting it to two U-shaped closed flux tubes. When molecule is attached to the receptor, these U-shape closed flux tubes reconnect. The actual situation is of course expected to be more complex but the basic principle would be this.
4. Neurotransmitters and also other information molecules can be seen as molecules at the ends of flux tubes having ends in some fixed subsystem X. The attachment of neurotransmitter to the receptor would build a flux tube connection between postsynaptic neuron and X. The magnetic bodies in question characterised by passwords defined by collections of cyclotron frequencies corresponding to a hierarchy of space-time sheets. The Josephson frequency associated with the receptor is inversely proportional to  $h_{eff}$ . The natural guess is that it corresponds to the cyclotron frequency of the magnetic body part for electron, proton, or some ion associated with it. Josephson frequencies should serve as kind of passwords and receptors would be in one-one correspondence with these passwords defining gateways even to the outer space if the value of Planck constant is large enough. The basic difference to ordinary view is that information molecules build only connections: after the establishment of a connection dark supracurrents and dark photons take care of the communication. Attaching the information molecule to receptor is like clicking a link in web.
5. Psychedelics would replace the ordinary neural transmitters building up this kind of flux tube connections in the normal situation so that the the connections could be to quite different places.

One might be able to test this crazy hypothesis.

1. Pineal gland could still serve as the “third eye” but utilizing large  $h_{eff}$  photons. Fishes and birds are able to navigate to their birth places. This mechanism could involve dark electron Cooper pairs at the magnetic flux tubes of Earth’s magnetic field generated by visible photons with energies above energy of red light making possible to move along magnetic flux tube: as the direction of flight ceases to be along it and spin direction of cyclotron Bose-Einstein condensate changes, cyclotron transitions induce dark photon emission at energy of visible photons in turn generating visual sensation. This would explain why radiation at MeV frequency leads to disorientation (cyclotron transitions are induced resonantly). This need not be enough. Could also “remote seeing” by pineal gland using the dark light coming along flux tubes (or maybe even active variant of this process by sending light which is reflected back in time direction). What about remote seeing in the “usual” sense of the word: could psychedelics help also in this process?

2. The role of DMT is especially interesting. Body synthesizes it and pumps it through blood-brain barrier. I learned in private discussion that the experiences induced by DMT are relatively predictable (Terence Mac Kenna has described it as a sudden “dropping” to another world somewhere “below” through some kind of wall) whereas other psychedelic substances induce rather unpredictable experiences. Could it be that DMT corresponds to a permanent connection to some fixed external magnetic body or to a higher layer of level of personal magnetic body with permanent reconnection to some part other magnetic body? DMT as also other psychedelic substances would only help to induce the signal as Josephson radiation. This would be analog to the higher probability of remote mental interaction due to pre-bonding. What happens during sleep: is this connection generated during sleep: what about concentration of DMT during sleep in various brain regions.
3. The information molecule-receptor complex would be associated with the communications to a part of magnetic body determined by the flux tube assignable to the information molecule and possible communications from magnetic body as sensory experiences such as psychedelic experiences and mediated by radiation in opposite time direction. Also control commands from magnetic body - assumed to be realized as signals in opposite time direction as compared to sensory signals - are important and a natural assumption is that the commands initiating gene expression enter through genome via flux sheets traversing through DNA: the time scale for gene expression is slow and also other mechanisms are very probably involved. If both genome and cell membrane can (on general grounds it seems that they must do so) send signals in both time directions, the general vision about motor action as time reversal of sensory perception implies that cell membrane receives also control commands.

More generally, the complex formed by reacting biomolecules and catalyst could form a complex receiving control commands from the magnetic body. A temporary fusion of a catalyst molecule and of reacting molecules could serve as the analog of the information molecule-receptor complex. The protein Josephson junction associated with this complex would receive in a resonant manner cyclotron radiation from the magnetic body inducing a transition to a state in which the potential barrier preventing the reaction would be lower.

4. An interesting but ethically questionable test for the hypothesis would be following. Transfer neurotransmitters associated with the of subject B to the brain of person A, and see what effect they have on conscious experience of A. If the proposal is correct, person A would have flux tube connection to the magnetic body of B, and might receive some memories of B for instance. Could transplants induce similar effects? Heart transplants are reported to have strange effects suggesting that heart (having a lot of neurons) has emotional memories.

Irrespective of whether one takes seriously the thought game leading to this proposal, one must admit that it would provide deep for the notion of “information molecule”.

## References

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