From Logic
to Realism
the Brighter Future for Humanity

This collection of published papers at International Journal of Neutrosophic Science actually began with just a simple request by Dr. Broumi Said, the editor of IJNS, to us, to submit an article for his new journal.

Then we submitted a series of new articles discussing various applications of Neutrosophic Logic, a new kind of logic as developed by one of us (FS). We explore a wide range of subject, from Godel's incompleteness theorem, to possible technocalypse and neutro-futurology, and also additional sections.

Hopefully you will find these articles interesting for better understanding of nature.

Soli Deo Gloria.
Medio April 2022
VC & FS

From Logic to Realism to Brighter Future for Humanity

Eunoia Publishing

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Victor Christianto
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Preface

This collection of published papers at International Journal of Neutrosophic Science actually began with just a simple request by Dr. Broumi Said, the editor of IJNS, to us, to submit an article for his new journal.

Then we submitted a series of new articles discussing various applications of Neutrosophic Logic, a new kind of logic as developed by one of us (FS). We explore a wide range of subject, from Godel's incompleteness theorem, to possible technocalypse and neutro-futurology, and also additional sections.

In section 3, we include six articles on vortex particle and other Neutrosophic applications: (i) A Short Remark on Vortex as Fluid Particle from Neutrosophic Logicperspective, (ii) An Expanded Model of Unmatter from Neutrosophic Logic perspective: Towards Matter-Spirit Unity View, (iii) A Review on Superluminal Physics and Superluminal Communication in light of the Neutrosophic Logic perspective, (iv) Leading From Powerlessness: A Third-way Neutrosophic Leadership Model For Developing Countries, (v) There is No Constant in Physics: a Neutrosophic Explanation, (vi) A short remark on Bong Han duct system (PVS) as a Neutrosophic bridge between Eastern and Western Medicine paradigms.

In section 4, we include four articles from Hilbert problem to Kelvin-Helmholtz electron model: (i) A Plausible Resolution to Hilbert's Failed Attempt to Unify Gravitation & Electromagnetism,

(ii) Electron Model Based on Helmholtz's Electron Vortex Theory and Kolmogorov's Theory of Turbulence, (iii) What they don't teach you at Harvard-Smithsonian In search of Navier-Stokes model of the Solar System, (iv) An explanation of Sedna orbit from condensed matter or superconductor model of the solar system: A new perspective of TNOs.

In section 5, we include six articles from historical debate on irrational number to electroculture: (i) Exploring the Historical Debates on Irrational Numbers Using Neutrosophic Logic as a Balance between Intuition and Rational, (ii) A Review of Seven Applications of Neutrosophic Logic: In Cultural Psychology, Economics Theorizing, Conflict Resolution, Philosophy of Science, etc., (iii) Wireless Technologies (4G, 5G) are Very Harmful to Human Health and Environment: A Preliminary Review, (iv) Review of Seven Advanced Methods to Reduce Impacts of 5G Harmful Radiations to Human Health and Environment, (v) A Thousand Words: How Shannon Entropy Perspective Provides Link between Exponential Data Growth, Average Temperature of the Earth and Declining Earth Magnetic Field, (vi) A Review on Electroculture, Magneticulture and Laserculture to Boost Plant Growth.

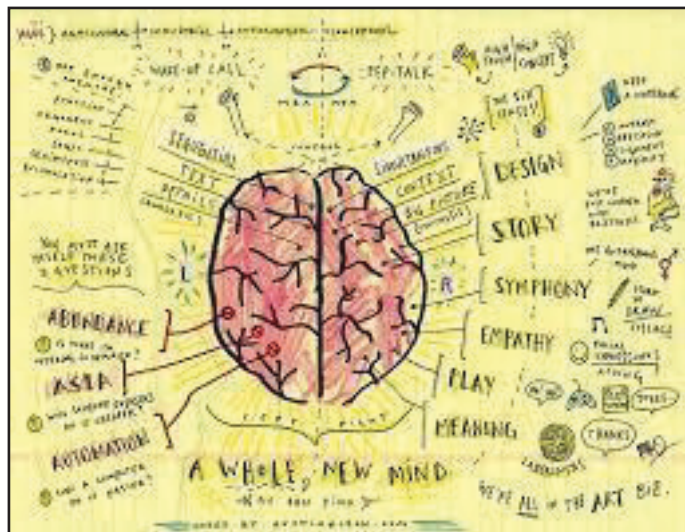Hopefully you will find these articles interesting for better understanding of nature.

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Content

SECTION 1
On Godel's incompleteness theorem

Note: illustration of Daniel Pink's The Whole New Mind (2016)

A Short Remark on Gödel Incompleteness Theorem and Its Self-referential Paradox from Neutrosophic Logic Perspective

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Abstract

It is known from history of mathematics, that Gödel submitted his two incompleteness theorems, which can be considered as one of hallmarks of modern mathematics in 20th century. Here we argue that Gödel incompleteness theorem and its self-referential paradox have not only put Hilbert's axiomatic program into question, but he also opened up the problem deep inside the then popular Aristotelian Logic. Although there were some attempts to go beyond Aristotelian binary logic, including by Lukasiewicz's *three-valued logic*, here we argue that the problem of self-referential paradox can be seen as reconcilable and solvable from *Neutrosophic Logic*

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perspective. **Motivation of this paper**: These authors are motivated to re-describe the self-referential paradox inherent in Godel incompleteness theorem. Contribution: This paper will show how Neutrosophic Logic offers a unique perspective and solution to Godel incompleteness theorem.

Keywords: Gödel incompleteness theorem, unprovability, undecidability, Neutrosophic Logic, Aristotelian Logic

1. Introduction

"This statement is unprovable." You can try to prove or disprove that particular statement, but indeed the statement is unprovable. That is how Gödel's incompleteness theorem began, see also [1], as in neutrosophic triplet: *proved, disproved, unprovable (indeterminate)*. Try also another statement: *"This statement is undecidable."* Sounds interesting? It is in the particular logic of our language, the problem of unprovability and undecidability belong to true problems of Hilbert's axiomatic program.

According to Padula, which can be rephrased as follows [6]:

"Bertrand Russell and A. N. Whitehead's **Principia Mathematica** (1910–1913), in the future assigned as PM, contained a proof that the entire of arithmetic can be created based on set hypothesis. With it they wanted to demonstrate that all arithmetic is established on rationale. Kurt Gödel's confirmation (1931) of the 'inadequacy' of formal frameworks, for example, PM is significant for some reasons. It is significant throughout the entire existence of arithmetic and for additional improvements in science, for example, the hypothesis of calculations and the hypothesis of formal frameworks which has prompted the advancement of PCs and scripting languages, and advances towards man-made consciousness; for the development of scientific evidence and confirmation hypothesis; and for the improvement of rationale as it is educated today. It is fascinating in light of the fact that to ace it a comprehension of language is as significant as information on science."

In literature, there are expository works on that theorem, which is dubbed as one of the hallmarks of 20th century mathematics. Rebecca Goldstein [2], wrote which can be paraphrased as follows:

> The verification that was to turn into the "well known Incompleteness Proof" had clearly been cultivated the prior year, when Gödel was 23, and it was to be submitted in 1932 as his *Habilitationsschrift,* the last stage in the drawn out procedure of turning into an Austrian or German Dozent. It is one of the most surprising bits of numerical thinking at any point created, shocking both in the straightforwardness of its fundamental system and in the unpredictability of its subtleties, the meticulous making an interpretation of metamathematics into science by method of what has come to be called Gödel numbering. It is a completely requested mixing of a few layers of "voices," both scientific and metamathematical, contrast converging into symphonious harmonies at no other time heard. Music seems to give an especially adept similitude, which is the reason Ernest Nagel and James R. Newman in their great explicatory work, Gödel's Proof, portrayed the evidence as an "amazing intellectual symphony."

It is known, that the Neutrosophic Logic [8] is the only logic that can deal with the paradoxes, since a paradox P is a proposition that is true (its truth degree T = 1) and false (its false degree F = 1) in the same time, and as a consequence the paradox is also completely indeterminate (its indeterminate degree I = 1). Therefore, the Neutrosophic truth-values of the paradox is P (1, 1, 1), where 1+1+1 = 3 > 1.

This paper will discuss, albeit shortly, on how Neutrosophic Logic can offer resolution to Gödel incompleteness theorem and its self-referential paradox.

2. Background: what is formal axiomatic program?

According to Steinmetz [3], which can be rephrased as follows:

"A formal system is, basically, a framework that has been expressly and totally characterized. At its most fundamental level a proper framework comprises of a plainly characterized language. The language is involved an assortment of images that speak to the most crude components of the language and are utilized to build the equations of the framework alongside a rundown of decides that characterize what comprises a grammatically all around shaped or semantically important recipe. In this way, the depiction of the conventional framework is distinctive relying upon whether the proper framework is built from a proofhypothetical or a model-hypothetical point of view. …

A proverbial framework is a framework that takes at least one recipes to be the maxims of the framework, which may possibly be a boundless number of equations if an adage diagram is utilized. The aphorisms of the framework are an assortment of recipes that are declared to be all around evident and from which the various genuine equations or hypotheses of the framework are gathered. In a proof-hypothetical framework the hypotheses of the framework are deductively demonstrated from the aphorisms of the framework or from recently demonstrated hypotheses. In a model-hypothetical framework the maxims of the framework characterize the substantial connections that exist between the articles that comprise the model of the framework and consequently the hypotheses of the framework are demonstrated dependent on what is valid for the items inside the model."

Into such a formal axiomatic program of Hilbert in early 1900, then came the young mathematician Gödel (see also [2][3][5]). What he did was to put the entire Hilbert's axiomatic program into question.

3. Discussion on *self-referential* paradox and a principle of *included middle*

Now, it is also possible to ask: how does Godel's incompleteness theorem give us a hint into what many physicists try to find: *The*

Ultimate Theory or often dubbed as "TOE"? Ben-Yaacov wrote in his abstract, which can be rephrased as follows :

> "An extreme Universal hypothesis – a total hypothesis that accounts, by means of not many and basic first standards, for all the marvels previously watched and that will ever be watched – has been, and still is, the desire of most physicists and researchers. However, an essential rule that is encapsulated in the aftereffects of Gödel's deficiency hypotheses is that self-referencing prompts consistent conflict or disappointment, as in the liar oddity or Russell's conundrum. In physical speculations self-referencing essentially happens when it is understood that the eyewitness is likewise a member in the accomplished marvels – *we, people, are a piece of the Universe while watching it*. In this manner self-referencing, and thusly intelligent conflicts, are unavoidable, and any hypothesis claiming to be Universal will undoubtedly be inadequate."[4]

He also puts forth argument :

> "Does Gödel's theorem apply to physics ? A common argument in favour of applying Gödel's theorem to physics, is, more or less, that "Gödel's theorem applies to arithmetics which is the basis of mathematics, physics uses mathematics, therefore Gödel's theorem applies to physics.""

Although there are counterarguments of the above statement, many problems with the advanced theoretical physics in the last 30-40 years seem to suggest that such is true for Gödel's theorem. With overreliance on heavy abstraction and sophisticated higher-mathematics, it became so hard to get our feet back to grounded (observed) realities - as proponents of grounded approach would say [7].

Now, after admitting this problem, then what is the resolution?

At this point, the following section will cite on how Neutrosophic Logic provides solution to the excluded middle principle in Aristotelian logic. According to one of us (FS):

"FS extended the Law of Included Middle [<A>, <nonA>, and a third value <T> which resolves their contradiction at another level of reality] to the Law of Included Multiple-Middle [<A>, <antiA>, and <neutA>, where <neutA> is split into a multitude of neutralities between <A> and <antiA>, such as <neut1A>, <neut2A>, etc.]. The <neutA> value (i.e. neutrality or indeterminacy related to <A>) actually comprises the included middle value. Also, he extended the Principle of Dynamic Opposition [oppositionbetween <A> and <antiA>] to the Principle of Dynamic Neutrosophic Opposition [which means oppositions among <A>, <antiA>, and <neutA>].[1]

Therefore there are more possibilities, beyond just excluded middle principle.

To summarize this discussion:

Godel incompleteness theorem actually exposes the fundamental problem in Aristotelian logic. That is excluded middle principle. As we may know, there are certain cases where paradoxes and even self-referential paradoxes exist.

So, in NL theory, it is always possible to find intermediate or third way:

(Standpoint A) -- intermediate/paradox – (Standpoint B)

But in NL theory we see those paradoxes in a new way, without rejecting it outright. For example:

"This statement is unprovable."

Or

"How do you decide between undecidability and unprovable?"

These two statements make Aristotelian logic defunct, but not Neutrosophic logic.

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1 See FS's bio: http://fs.unm.edu/FlorentinSmarandache.htm, also url: http://fs.unm.edu/LawIncludedMultiple-Middle.pdf

From Logic to Realism

The Neutrosophic Logic is the only logic that can deal with the paradoxes, since a paradox P is a proposition that is true (its truth degree T = 1) and false (its false degree F = 1) in the same time, and as a consequence the paradox is also completely indeterminate (its indeterminate degree I = 1). Therefore, the Neutrosophic truth-values of the paradox is P(1, 1, 1), where 1+1+1 = 3 > 1. No other logics allow the sum of its components to go over 1. *Self-Referential Paradoxes* have the same neutrosophic representation: T =1, F = 1, and I = 1.

4. Concluding remarks

This paper argues that Gödel incompleteness theorem and its self-referential paradox have not only put Hilbert's axiomatic program into question, but he also opened up the problem deep inside the then popular Aristotelian Logic.

Although there were some attempts to go beyond Aristotelian binary logic, including Lukasiewicz's three-valued logic, here it is argued that the problem of self-referential paradox can be seen as reconcilable and solvable from Neutrosophic Logic perspective.

Summarizing, in Neutrosophic Logic, the Neutrosophic truth-values of the paradox is P(1, 1, 1), where 1+1+1 = 3 > 1.

No other logics allow the sum of its components to go over 1. Self-Referential Paradoxes have the same neutrosophic representation: T =1, F = 1, and I = 1.

Hopefully this article will inspire further investigations.

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SECTION 2
On neutro-futurology

Artist illustration of Terminator series (when robots reign, sometimes it is called "techno-calypse, cf. Kurzweil)
Read for instance: https://www.nbcnews.com/id/wbna30891866

Remark on Artificial Intelligence, humanoid and Terminator scenario:
A Neutrosophic way to futurology

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Abstract

This article is an update of our previous article in this SGJ journal, titled: *On Gödel's Incompleteness Theorem, Artificial Intelligence & Human Mind* [7]. We provide some commentary on the latest developments around AI, humanoid robotics, and future scenario. Basically, we argue that a more thoughtful approach to the future is *"technorealism."*

Keywords: Neutrosophic Logic, Neutrosophic Futurology, artificial intelligence

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From Logic to Realism

1. Introduction

Indeed among the futurists, there are people who are so optimistic about the future of mankind with its various technologies, such as Peter Diamandis with his *"Abundance."* But there are also skeptics, predicting "*dystopia*," like George Orwell's 1984 etc. [4]

At my best, our response is: we must develop a view of technology that is not very optimistic but also not pessimistic, perhaps the right term is: "*Techno-realism*."[3]

We mean this: with a lot of research on robotics, humanoid etc., then emerged developments in the direction of *transhumanism and human-perfection*. [6]

There is already a fortune-telling that AI will be established with psychological and spiritual science, so as to bring up the AI/robotic consciousness. [7]

But lest we become forgetting our past, and building the tower of Babylon.

For example, last year the world's robotics experts were made yammer because there was a "*tactical-robot*" report developed in one of the labs on campus in South Korea. It means this tactical robot is a robot designed to kill. Then Elon Musk and more than 2000 AI researchers raised petitions to the UN to stop all research on the tactical robotic. [2]

Roughly it's a true story that we can recall, although it is not our intention here to give foretelling that the world would be heading for the Terminator movie scenario.... but there's a chance we're heading there.

A Neutrosophic perspective

As an alternative to the above term of "techno-realism", our problem of predicting future technology that is not very optimistic but also not pessimistic, is indeed a Neutrosophic problem.

First, let us discuss a commonly asked question: what is Neutrosophic Logic? Here, we offer a short answer.

Vern Poythress argues that sometimes we need a modification of the basic philosophy of mathematics, in order to re-define and redeem mathematics [8]. In this context, allow us to argue in favor of Neutrosophic logic as a starting point, in lieu of the Aristotelian logic that creates so many problems in real world.

In Neutrosophy, we can connect an idea with its opposite and with its neutral and get common parts, i.e. <A> ∧ <non-A> = nonempty set. This constitutes the common part of the uncommon things! It is true/real—paradox. From neutrosophy, it all began: neutrosophic logic, neutrosophic set, neutrosophic probability, neutrosophic statistics, neutrosophic measures, neutrosophic physics, and neutrosophic algebraic structures [9].

It is true in a restricted case, i.e. Hegelian dialectics considers only the dynamics of opposites (<A> and <anti-A>), but in our everyday life, not only the opposites interact, but the neutrals < neut-A > between them too. For example, if you fight with a man (so you both are the opposites to each other), but neutral people around both of you (especially the police) interfere to reconcile both of you. Neutrosophy considers the dynamics of opposites and their neutrals.

So, neutrosophy means that: <A>, <anti-A> (the opposite of <A>), and < neut-A > (the neutrals between <A> and <anti-A>) interact among themselves. A neutrosophic set is characterized by a truth-membership function (T), an indeterminacy-membership function (I), and a falsity-membership function (F), where T, I, F are subsets of the unit interval [0, 1].

As particular cases we have a single-valued neutrosophic set {when T, I, F are crisp numbers in [0, 1]}, and an interval-valued neutrosophic set {when T, I, F are intervals included in [0, 1]}.

From a different perspective, we can also say that neutrosophic logic is (or "Smarandache logic") a generalization of fuzzy logic based

on Neutrosophy (http://fs.unm.edu/NeutLog.txt). A proposition is t true, indeterminate, and f false, where t, i, and f are real values from the ranges T, I, F, with no restriction on T, I, F, or the sum n = t + i + f. Neutrosophic logic thus generalizes:

- Intuitionistic logic, which supports incomplete theories (for 0 < n < 100 and i = 0, 0 < = t, i, f < = 100);
- Fuzzy logic (for n = 100 and i = 0, and 0 < = t, i, f < = 100);
- Boolean logic (for n = 100 and i = 0, with t, f either 0 or 100);
- Multi-valued logic (for 0 < = t, i, f < = 100);
- Paraconsistent logic (for n > 100 and i = 0, with both t, f < 100);
- Dialetheism, which says that some contradictions are true (for t = f = 100 and i = 0; some paradoxes can be denoted this way).

Compared with all other logics, neutrosophic logic introduces a percentage of "indeterminacy"—due to unexpected parameters hidden in some propositions. It also allows each component t, i, f to "boil over" 100 or "freeze" under 0. For example, in some tautologies t > 100, called "overtrue." Neutrosophic Set is a powerful structure in expressing indeterminate, vague, incomplete and inconsistent information.

Therefore, from Neutrosophic Logic perspective, "our problem of predicting future technology that is not very optimistic but also not pessimistic" can be rephrased as follows:

(Opposite 1) pessimism – pess-optimism –- optimism (Opposite 2)

While the term pess-optimism may be originated in engineering (perhaps in geotechnical engineering), but it has become one term in urban dictionary, see:

> "A philosophy that encourages forward-thinking optimism with an educated acceptance of a basic level of **pessimism**. **Optimism's** fault is its naïveté, while **pessimism's** fault is its blind jadedness. We live on Earth and are human. There is, was and will be good and bad."[10].

That would mean a more balanced view of the future (futurology), something between too optimistic view and too pessimistic view. It is our hope that Neutrosophic perspective may shed more light on this wise term of pessoptimism, although for us *"techno-realism"* term may bring more clarity with respective to technology foretelling.

Alternatively, we can also consider a few new terms, such as:

a. Less-optimism: somewhat less than optimism, although it is not pessimism.
b. Merging optimism and realism: *opti-realism*. It can be somewhat better term compared to pess-optimism, because realism brings a more pragmatic view into the conventional dialogue between pessimism and optimism.

Then may be we can call this new approach: Neutrosophic Futurology.

What about AI fever?

In line with it, a Canadian mathematics professor wrote the following message a few days ago:

> "I am appalled by the way how computer science damaged humanity. It has been even worse than nuclear bombs. It destroyed the soul of humanity and I have less than 0% interest in doing anything in this evil field. Now something more destructive than data mining is coming up. Yes AI, Probabilistic AI. It says we don't know why but somehow it works. So we started to have air plane malfunction because of the AI program failure. "

Of course you can agree or not with the expression of that mathematics professor, but reportedly the employees of Google also demanded strict rules for AI to be freed from weaponry purposes, or called "weaponized AI "[1].

Meanwhile, it is known that the development of science and technology has a positive and negative facet as well as the Robotics & AI. Although positive contributions are obvious, but the side effects

are spiritual and mental aspects; and it needs to be prepared so that people can still take the positives, for example the planner of robotic Intelligence must have a code of ethics: *Intelligence robotics should not harm or kill humans, rob banks etc*. For other ethical issues of AI, see for example [5].

Are there practical examples of the realism attitude in technology?

If you got free time, read the periodicals around the industry in Japan. There are at least 2 interesting phrases that are worth a study: *Ikigai* and *Monozukuri*.

The *ikigai* may be a bit often we hear, meaning: The reason we wake up early, consisting of a balance between passion, work, profession etc. Then what is *Monozukuri*? According to a source:

> "Monozukuri is a Japanese word derived from the word " mono "means product or item and " Zukuri "means the creation, creation or production process. However, this concept has far broader implications than its literal meaning, where there is a creative spirit in delivering superior products as well as the ability to continuously improve the process..."

What is the implementation? Let's look at 2 simple examples:

A. *Sushi*: Though simple at a glance, *sushi* is carefully designed so that the size is a one-stop meal. No more and no less. That is the advantage of many innovations that are typical of Japanese, because they think carefully from the usefulness, size, artistic value of the product. And so on.

B. *Shinkansen*: The uniqueness of this train is not only about speed, but also on time (punctual). Even reportedly, the time lag between train sets is less than 5 minutes. And everything is designed by Japanese railway engineers even before there is a personal computer or AI. Then how did they design such an intricate system? Answer: They use dynamic control theory ("*Dynamic control Theory*").

Concluding remarks

Of course this is just a brief comment on a complicated topic that needs to be carefully examined and cautiously thought of.

Let the authors close this article by quoting the sentence of a wise man in the past centuries:

"Lo, this only have I found, that God hath made man upright; but they have sought out many inventions."

Wishing you all a happy a new year 2020. Hopefully next year there will be not a robot to greet you. Yes it is indeed a great paradox in the 21st century: "*Robots are increasingly proficient at imitating humans, but many humans live like robots.*"- personal quote.

Acknowledgement

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SECTION 3:

Vortex Particles
and Other Neutrosophic Articles -
Into a Bright Future
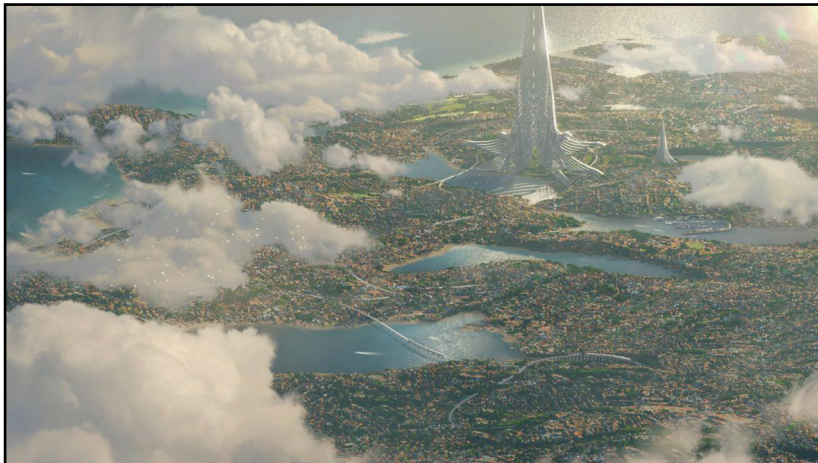
Illustration: James Combridge.
Source: ArtStation, url: https://www.artstation.com/artwork/Kmbnx

A Short Remark on Vortex as Fluid Particle from Neutrosophic Logic Perspective (Towards "Fluidicle" or "Vorticle" Model of QED.)

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Abstract

In a previous paper in this journal (IJNS), it is mentioned about a possible approach to re-describe QED without *renormalization route*. As it is known that in literature, there are some attempts to reconcile vortex-based fluid dynamics and particle dynamics. Some attempts are not quite as fruitful as others. As a follow up to previous paper, the present paper will discuss two theorems for developing unification theories, and then point out some new proposals including by Simula (2020) on how to derive Maxwell equations in superfluid dynamics setting; this could be a new alternative approach towards *"fluidicle"* or *"vorticle"* model of QED. Further research is recommended in this new direction.

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1. Introduction

In literature, there are some attempts to reconcile between vortex-based fluid dynamics and particle dynamics, see [15-21]. Some attempts are not quite fruitful as others, concerning describing classical electrodynamics.

This paper will continue our previous article, suggesting that it is possible to find a way out of the infinity problem in QED without renormalization route [14]. As in the previous paper [14], the role of neutrosophic Logic (developed by one of us, FS) here is to find a third way or intermediate solution between point particle and vortex, that is why it is suggested here a combined term: "*vorticle*" (from vortex and particle), or it may be called: "*fluidicle*" (from fluidic particle). These new words vorticle and fluidicle are intended to capture the essence of "middle way" representing the Neutrosophic Logic view.

Here three possible approaches by Tapio Simula, Lehnert's RQED, and also Carl Krafft, will also be discussed.

The present paper will point out some new papers including by Simula [7] on how to derive Maxwell equations in superfluid dynamics setting, this could be a new alternative approach towards "fluidicle" or "vorticle" model of QED.

2. A short review of progress QED theories in literature and two new theorems.

There are some progress in the literature of QED, beyond what is called "renormalization" route, for instance by Daywitt, using a 7-dimensional spacetime and spinor wave [22-24].

Other developments have been made by Prof. Bo Lehnert, which

he calls: revised Quantum Electrodynamics. There are numerous possible ways to develop QED-like theories, and not only that some theoreticians have gone further to develop Unification Theories, SuperUnification, and even Theory of Everything (TOE).

But almost all of them boiled down to mounting complexities and ever-increasing difficult technicalities, so it appears to be more direct approach to start with writing down two theorems as follows:

2.a. Two new theorems and a corollary

Based on the above discussions, actually, it is suggested two theorems and a corollary over here:

Theorem 1:

The true unified theory between gravitation, particles, and electromagnetic (UTGPE) fields should be based on a consistent model of *vacuum*, preferably by a kind of ether fluid dynamics.

Theorem 2:

The true UTGPE, albeit it is quite difficult to find, shall be founded on no more than 3-dimensional space and 1-dimensional time (Newtonian space).

Corollary:

It should be possible and indeed relatively easy to find theoretical ways to unify four fundamental forces by increasing spacetime dimensionality. Supra dimensional spacetime is one character of *anti-realism* theory of UTGPE.

2.b. Implication

Therefore, a good candidate of true UTGPE, or at least a unification of gravitation and electromagnetic field in a quantum sense, should be better off based on such characteristics, as a consistent

combination between a quantum feature of electrodynamics theory and/or quantum or *sub-quantum²* model of aether fluid.

3. Three possible alternatives on QED

Allow us to begin this section with a quote from Sonin's book [1], which can be paraphrased as follows:

> "The movement of vortices has been a region of study for over a century. During the old style time of vortex elements, from the late 1800s, many fascinating properties of vortices were found, starting with the outstanding Kelvin waves engendering along a disconnected vortex line (Thompson, 1880). The primary object of hypothetical investigations around then was a dissipationless immaculate fluid (Lamb, 1997). It was difficult for the hypothesis to find a shared opinion with try since any old style fluid shows gooey impacts. The circumstance changed after crafted by Onsager (1949) and Feynman (1955) who uncovered that turning superfluids are strung by a variety of vortex lines with quantized dissemination. With this revelation, the quantum time of vortex elements started."

Then it is possible find an expression that relates the topological and quantized vortices from the viewpoint of Bohr-Sommerfeld quantization rules, which seem to remind us to the Old Quantum Theory, albeit from a different perspective.

The quantization of circulation for nonrelativistic superfluid is given by [3]:

$$\int v dr = N \frac{\hbar}{m_s}$$

(1)

Where N, $\hbar$, m_s represents the winding number, reduced Planck constant, and superfluid particle's mass, respectively [3]. And the total number of vortices is given by [44]:

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2   Added note: Robert N. Boyd has suggested his sub-quantum kinetic model of aether and also electron, using some features of Kelvin-Helmholtz vortex theorem. See for instance: V. Christianto, F. Smarandache & R.N. Boyd, Electron Model Based Helmholtz's Electron Vortex & Kolmogorov's Theory of Turbulence. Prespacetime J. vol. 10 (1), 2019. url: https://prespacetime. com/index.php/pst/article/view/1516

$$N = \frac{\omega \, 2\pi r^2 m}{\hbar}$$

<div align="right">(2)</div>

Some implications:

a. Simula's approach

Provided it is acceptable that there is a neat correspondence between quantized vortices in superfluid helium and Bohr-Sommerfeld quantization rules, now let us quote from abstract of a recent paper where Tapio Simula wrote, which can be rephrased as follows [7]:

> "Right now, and electromagnetism have a similar starting point and are new properties of the superfluid universe, which itself rises up out of the hidden aggregate structure of progressively basic particles, for example, atoms. The Bose-Einstein condensate is identified as the tricky dull matter of the superfluid universe with vortices and phonons, separately, comparing to huge charged particles and massless photons." (7)

In Simula's model, Maxwell equations can be re-derived right from superfluid vortices.

b. Lehnert's RQED

And one more approach is worthy to mention here. Instead of Simula's model of electromagnetic and gravitation fields in terms of superfluid vortices, we can also come up with a model of electrodynamics by Lehnert's RQED from Proca equations. As Proca equations can be used to describe the electromagnetic field of superconductor, we find it as a possible approach too.

Conventional electromagnetic theory based on Maxwell's equations and quantum mechanics has been successful in its applications in numerous problems in physics and has sometimes manifested itself in a good agreement with experiments. Nevertheless, as already stated by Feynman, there are unsolved problems which lead to difficulties

with Maxwell's equations that are not removed by and not directly associated with quantum mechanics [20]. Therefore QED, which is an extension of Maxwell's equations, also becomes subject to *the typical shortcomings* of electromagnetic in its conventional form. This reasoning makes a way for Revised Quantum Electrodynamics as proposed by Bo Lehnert. [11-13]

In a series of papers, Bo Lehnert proposed a novel and revised version of Quantum Electrodynamics, which he calls as RQED. His theory is based on the hypothesis of a nonzero electric charge density in the vacuum, and it is based on *Proca-type* field equations [10, p. 23]:

$$\left(\frac{1}{c^2} \frac{\partial^2}{\partial t^2} - \nabla^2 \right) A_\mu = \mu_y J_\mu, \mu = 1,2,3,4 \tag{3}$$

Where

$$A_\mu = \left(A, \frac{i\phi}{c} \right), \tag{4}$$

With A and ϕ standing for the magnetic vector potential and the electrostatic potential in three-space. In three dimensions, we got [20, p.23]:

$$\frac{curlB}{\mu_y} = \varepsilon_0 (divE)C + \frac{\varepsilon_0 \partial E}{\partial t}, \tag{5}$$

$$curlE = -\frac{\partial B}{\partial t}, \tag{6}$$

$$B = curlA, divB = 0, \tag{7}$$

$$E = -\nabla\phi - \frac{\partial A}{\partial t}, \tag{8}$$

$$divE = \frac{\overline{\rho}}{\varepsilon_0}. \tag{9}$$

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These equations differ from the conventional form, by a nonzero electric field divergence equation (9) and by the additional space-charge current density in addition to displacement current at equation (5). The extended field equations (5)-(9) are easily found also to become invariant to a gauge transformation.[10, p.23]

The main characteristic new features of the present theory can be summarized as follows [10, p.24]:

a. The hypothesis of a nonzero electric field divergence in the vacuum introduces an additional degree of freedom, leading to new physical phenomena. The associated nonzero electric charge density thereby acts somewhat like a hidden variable.

b. This also abolishes the symmetry between the electric and magnetic fields, and then the field equations obtain the character of intrinsic linear symmetry breaking.

c. The theory is both Lorentz and gauge invariant.

d. The velocity of light is no longer a scalar quantity but is represented by a velocity vector of the modulus c.

e. Additional results: Lehnert is also able to derive the mass of Z boson and Higgs-like boson.[21] These would pave an alternative way to new physics beyond Standard Model.

Now it should be clear that Lehnert's RQED is a good alternative theory to QM/QED, and therefore it is also interesting to ask whether this theory can also explain some phenomena related to LENR and UDD reaction of Homlid (as argued by Celani *et al*).[8]

A recent paper [8] presented arguments in favor of extending RQED to become a fluidic Maxwell-Proca equations, as follows:

Now it appears possible to arrive at fluidic Maxwell-Proca equations, as follows [8]

$$\nabla \cdot \vec{E} = \frac{\rho}{\varepsilon_0} - \kappa^\wedge \phi,$$

(10)

$$\nabla \cdot \vec{B} = 0, \tag{11}$$

$$\dot{B} = -\nabla \times E - \nabla \times \left(\hat{\beta} \nabla \times H_0 \right), \tag{12}$$

$$\varepsilon_0 \mu_0 \dot{E} = \nabla \times B - \mu_0 j - \kappa^2 A - \left(\hat{\sigma} E_0 + \rho_e v + \hat{\gamma} \nabla T \right) - \nabla \times \left(\hat{a} \nabla \times E_0 \right), \tag{13}$$

where:

$$\nabla \phi = -\frac{\partial \vec{A}}{\partial t} - \vec{E}, \tag{14}$$

$$\vec{B} = \nabla \times \vec{A}, \tag{15}$$

$$\kappa = \frac{mc_0}{\hbar}. \tag{16}$$

Since according to Blackledge, the Proca equations can be viewed as a *unified wavefield* model of electromagnetic phenomena [7], therefore the fluidic Maxwell-Proca equations can be considered as a *unified wavefield* model for electrodynamics of superconductor.

Now, having defined Maxwell-Proca equations, it is possible to write down *fluidic* Maxwell-Proca-Hirsch equations using the same definition, as follows:

$$(\hat{\square}_\alpha - \kappa^2)(F - F_{\_}) = \frac{1}{\lambda_L^2}(F - F_{\_}), \tag{17}$$

And

$$(\hat{\square}_\alpha - \kappa^2)(J - J_{\_}) = \frac{1}{\lambda_L^2}(J - J_{\_}), \tag{18}$$

where

$$\square_\alpha^2 = \nabla^2 - \frac{1}{c^2} \frac{\partial^{\alpha 2}}{\partial_t^{\alpha 2}}. \tag{19}$$

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In literature, the above fluidic Maxwell-Proca-Hirsch equations have never been presented elsewhere before. Provided the above equations can be verified with experiments, they can be used to describe electrodynamics of superconductors.

c. Krafft's approach

A third approach of describing elementary particles from aether vortices perspective is discussed by Carl F. Krafft [9]. See for example:
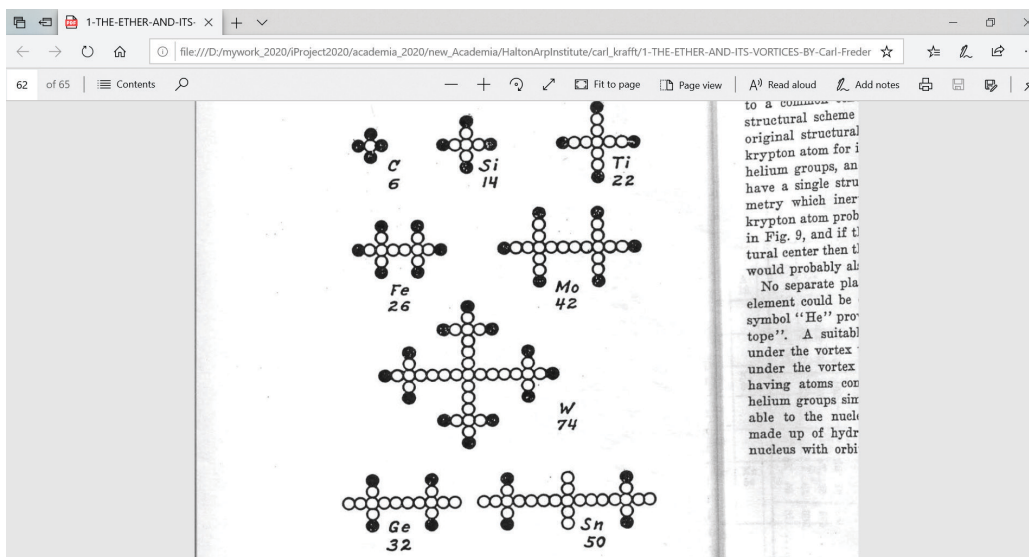

Figure 1. A few elementary particles, source: Carl Frederich Krafft [9]

4. Concluding remarks

In this paper, continuing our previous article, it is argued that it is possible to find a way out of the infinity problem in QED without renormalization route [14]. As a follow up to previous paper, in the present paper, first of all, two theorems for developing unification theories have been discussed, along with pointing out some new proposals including by Simula (2020) on how to derive Maxwell equations in superfluid dynamics setting. This could be a new alternative approach towards "*fluidicle*" or "*vorticle*" model of QED.

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Three possible approaches: Tapio Simula, Lehnert's RQED and also Carl F. Krafft, have also been discussed. Nonetheless it should admitted that this article is not complete yet on possible ways to describe vorticle or fluidic as an alternative to QED.

Hopefully this article will inspire further investigations in this line of thoughts.

Acknowledgment

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An Expanded Model of Unmatter from Neutrosophic Logic perspective: Towards Matter-Spirit Unity View

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Abstract

In Neutrosophic Logic, a basic assertion is that there are variations of about everything that we can measure; the variations surround three parameters called T, I, F (truth, indeterminacy, falsehood) which can take a range of values. A previous paper in IJNS, 2020 shortly reviews the links among aether and matter creation from the perspective of Neutrosophic Logic. In any case, matter creation process in nature stays a major puzzle for physicists,

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scientists and other science analysts. To this issue neutrosophic logic offers an answer: "unmatter." This paper examines an extended model of unmatter, to incorporate issue soul solidarity. So, neutrosophic logic may demonstrate helpful in offering goal to long standing clashes.

1. Introduction

In accordance with the quick improvement of new part of basic science, for example neutrosophic logic, here we talk about possible use of NL hypothesis in the field of media transmission. See for ongoing papers: [31-35].

It is known that *matter creation* processes in nature remains a big mystery for physicists, biologists and other science researchers. To this problem neutrosophic logic offers a solution, i.e. *unmatter and unparticle*. See also previous papers on unmatter [21-27].

To put it plainly, neutrosophic logic may demonstrate helpful in offering goal to long standing clashes. See likewise our past papers on this issue. [1-2].

2. Matter creation processes and Grusenick experiment

Physicists all through numerous hundreds of years have bantered over the physical presence of aether medium. Since its origin by Isaac Newton, many accepted that it is required in light of the fact that in any case it is highly unlikely to clarify communication a good ways off in a vacuum space. We need mechanism of connection, of which has been called by different names, for example, quantum vacuum, zero point field, and so forth.

The celebrated Michelson-Morley tests were thought to give invalid outcome to aether speculation, and truly it was the premise of Einstein's STR. In any case, more up to date conversations demonstrated that the proof was fairly equivocal, from MM

information itself. Particularly after Dayton Miller examinations of aether float were accounted for, an ever increasing number of information came to help aether speculation, albeit numerous physicists would lean toward another terms, for example, physical vacuum or superfluid vacuum. See [9-13].

In this regards, an experiment which is worthy to mention here is by Grusenick. Actually, his method is quite similar to Michelson-Morley experiment, except that he puts the interferometer *vertically*, which makes him able to detect the vertical aether inflow perpendicularly toward the surface of the Earth. Because only few papers discuss his result, let us give him space to tell in his own words, which can be paraphrased as follows:

"I have perused your information with much intrigue. Numerous individuals state that my development is precisely excessively flimsy, and that gravity impacts my contraption. So I assembled another. A man named Norbert Feist gave me better optical hardware to utilize. The new interferometer is just a steel plate with 189mm width and 8mm thick. The mirrors and the mirror holders are fabricated by Edmund, USA. Their shaft splitter anyway is precisely excessively insecure, so I utilized the one I made myself.

The obstruction design is anticipated on a little bit of paper. During a 180° pivot with the new Interferometer, I can see on normal 1.5 impedance periphery shifts during the night and 2.0 during daytime. With the more established one, which you can find in the YouTube film, there are 11.0 movements around evening time and 11.5 if the trial is performed during daytime. In this way, the two Interferometers (the more seasoned and the more up to date one) show a distinction of 0.5 obstruction periphery shifts among day and night.

I additionally might want to make reference to that a slight variety in the quality of the periphery design development happens during various days of the month. On Thursday 16.10.2009 at 24.00 o clock, I could see a full 3.0 obstruction periphery shifts per 180° pivot (with the new interferometer). The zero point, wherea stop of the example development occurs, is for the two interferometers at a similar position. There are twozero focuses in a 360°

turn of the two interferometers when the shaft splitter is situated evenly to the world's surface. To all individuals who state that the main impact on the interferometer is gravity, I have a straightforward inquiry. Why would that be no zero point or stop of the periphery design development when the shaft splitter is in the vertical position? In the pillar splitter's vertical position, the mirrors and the mirror holders are evenly pushed by gravity. In any case, there is no zero point."[19]

According to Paul LaViolette, Grusenick's experiment proves the existence of ether and also his G-ons theory:

"Subquantum Kinetics requires that G etherons (G-ons) reliably diffuse into the Earth, driven by the incline in the Earth's 1/r gravitational conceivable field. The low G-on center inside the Earth, as differentiated and the Earth's space condition, develops considering the way that G-ons are foreseen to be conveyed at an all the more moderate rate in the unbiased issue inside the Earth as differentiated and enveloping space. … Later he built up an improved adjustment of the interferometer, showed as follows, and found a total fringe move of 1.5 to 2.0 as the mechanical gathering was turned in the vertical bearing. This value comes closer to that of U.S. investigator Frank Pearce who has played out a type of the Grusenick break down using a 1 inch thick stone square, as opposed to an aluminum board, for mounting the interferometer mirrors and who found a move of just around one half to one outskirts when the mechanical get together was turned in the vertical bearing."[20]

Alternatively, let us assume that under certain conditions that aether can transform using Bose condensation process to become "*unmatter*", a transition phase of material, which then it sublimates into matter (solid, gas, liquid). Unmatter can also be considered as "pre-physical matter."

Summarizing our idea, it is depicted in the following block diagram [1]:

> Aether → bose condensation → "unmatter" (pre-physical matter) → sublimation → ordinary matter/particle
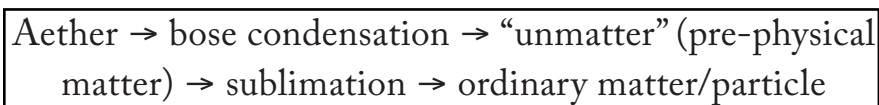
Diagram 1. How aether becomes ordinary matter

Actually the term "unmatter" can be viewed as a solution from perspective of Neutrosophic Logic. A bit of history of unmatter term may be useful here:

"The word 'Unmatter' was instituted by one of us (F. Smarandache) *and distributed in 2004 of every three papers regarding the matter. Unmatter is framed by mixes of issue and antimatter that bound together, or by long-extend blend of issue and antimatter shaping a pitifully coupled stage. The possibility of unparticle was first considered by F. Smarandache in 2004, 2005 and 2006, when he transferred a paper on CERN site and he distributed three papers about what he called 'unmatter', which is another type of issue framed by issue and antimatter that quandary together. Unmatter was presented with regards to 'neutrosophy'* (Smarandache, 1995) *and 'paradoxism'* (Smarandache, 1980), *which depend on blends of inverse substances 'An' and 'antiA' along with their neutralities 'neutA' that are in the middle."*[3] See also Christianto & Smarandache [17]. See also F. Smarandache et al.'s papers and books, [21-27].

In any case, in this paper, unmatter is considered as a progress state (pre-physical) from aether to get common particles, see also [1]. Moreover, superfluid model of dark matter has been discussed by some authors [6-7].

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3   http://fs.unm.edu/unmatter.htm

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3. An expanded model of unmatter

In other side, it is known that astronomers find that only 1% of matter in the universe is observed, while 99% is undetected. That is why they call it the Hidden Universe.

Could it be that aether (may be in form of superfluid medium, a ka Mishin phase state) can be intermediate entity in neutrosophic sense?

In this line of thought, it is possible to come up with an expanded model of unmatter, as follows:
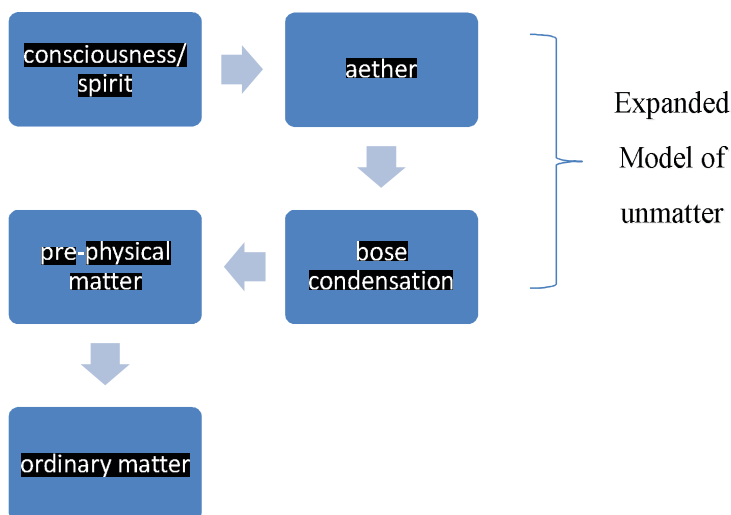

Diagram 2. *An expanded model of unmatter*

May be it is because the remaining entities are in the form of consciousness, aether and pre-physical matter. That is what can be called as "*expanded model of unmatter.*"

4. Remark on grid cells, bhutatmas, and consciousness

May be it is possible to come up with a model of how spirit affect matter and vice versa, which reminds us to papers by Ervard Moser et al. on grid cells, space cells etc.

We can add some remark as follows:

"Space cells and grid cells were first discussed by Alfven (Nobel Prize in Physics) regarding plasma behaviors. I brought it out that these cells have, and evoke, personality traits in all who occupy the given cell, over large spans of time. Which means each star and each cell in the spaces between stars, has a

The Russians did a research project that covered most of Asia, and all of Europe, and determined that each cell contains life forms plants animals birds insects fish, and so on, that are unique to that specific cell, and that the people who are native to a given cell have similar personality traits and behaviors unlike the inhabitants of other cells.

The personality of the land of a given cell produces an ambient "personality field" and a unique "magic" that can be learned and used by the inhabitants as a source of benefits which are specific to that cell.

These personality cells are produced by the aether energy-information contents of the plasmas which originate the personality of the given cell. These cell have distinct boundaries and are directly involved with creating life-forms which are perfectly suited to life in the given cell. Some life forms are able to cross over into other cells without undue stresses. Others do not live long when they are removed from their native information-energy habitat.

For life forms which are able to transit and occupy various cells, if the given Being spends a large amount of time in a specific cell, they start to change physically and psychologically in alignment with the qualities of the personality of the land they are spending large amounts of time in.

The Bhutatmas are conveyed by plasmas and "stick to" every material form. Aether clings to matter at all scales, interpenetrating it and forming an atmosphere, similar to the photographs taken by Krasnoholovets of the "atmosphere" of "inertons" which surround electrons. Inertons are much larger than Bhutatmas, however.

There are many layers of behaviors related to the smallness of the entities involved which form thresholds of altered physical behaviors, as seen in Pendry structures and other metamaterials.

Air currents, water currents, electrical flows, plasma flows, and all wave forms in all media, regardless of phase state, convey aether and information energy

between end points and all along the lines of the flows. Aether circuits are always bi-directional between end-points, while plasma and electrical flows are onedirectional. Gravitation and time aether flows also carry information-energy and can alter the given local energetic informational environment fairly rapidly, or over large spans of time.

Marjanovic's model does not cover any of this, as he has no attention for the physics of information-energy, Consciousness, nor studies of the activities of Divinity. Bhutatmas cover all the bases."

Moreover we can add…

"Personality cells are determinant in what kinds of matter are formed, and in where and when they are formed. Stars each have a unique personality, a unique chemistry, and a unique radiation spectrum, exactly because they are formed in different cells with different personalities, which personality cells act as environmental factors during star formation and planet formation.

This is related to the Telluric Intelligence (inhabiting aether rivers) which is endemic to and inherent in each star and each planet. Probably, each Telluric Intelligence is unique, as well as being involved with the unique star and the unique planets associated with the given star.

According to Wal Thornhill and Steven Smith, with whom we agree on this, planets are formed internal to stars by precipitation processes resulting from the creation of atomic elements in the outer-most layers of stars, due to charge separation in stellar plasmas creating enormous gradients in the stellar electric field, thus urging the aether involved with the given star to create new atoms, as put into evidence in the SAFIRE Project. The newly formed atoms tend to precipitate and drift towards the central regions of the given star. Each planet will be unique, but have some traits in common with its parent star.

Uniqueness is partly due to non-local influences being imposed on stellar systems by infinite velocity infinitesimals which carry and convey information to the given stellar system which influence the personality and material composition of the given star. This is a process due to the 5th phase state in Mishin's 5 phasestate aether. (Tesla talks about non-local influences imparting

information and various forms of organization to local systems.) This is in addition to the Personality information inherent to the given aether-plasma spacecell, which can modify the local personality over time, and in response to superluminal activities of quantized red-shifts resulting in local variations in the laws of physics in the region, and local variations in the fine structure "constant", leaving leaving the galaxy-core aether-plasmoid in superluminal 3D shells, modifying the physics in the volume of the given out-bound shell."

Hopefully many more approaches can be developed in the direction as mentioned above.

5. Concluding remarks

In this paper, we discussed three possible applications of Neutrosophic Logic in the field of matter creation processes etc. For instance, a redefinition of term "unmatter" is proposed here, where under certain conditions, aether can transform using Bose condensation process to become "unmatter", a transition phase of material, which then it sublimates into matter (solid, gas, liquid). Unmatter can also be considered as "pre-physical matter." Moreover, we can extend it further to include consciousness/spirit, which may explain why the 99% of matter in this Universe is undetected. Further researches are recommended in the above directions.

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A Review on Superluminal Physics and Superluminal Communication in Light of the Neutrosophic Logic Perspective

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Abstract

In a recent paper, we describe a model of quantum communication based on combining consciousness experiment and entanglement, which can serve as impetus to stop 5G-network-caused diseases. Therefore, in this paper we consider superluminal physics and superluminal communication as a bridge or intermediate way between subluminal physics and action-at-a-distance (AAAD) physics, especially from neutrosophic logic perspective. Although several ways have been proposed to bring such a superluminal communication into reality, such as Telluric wave or Telepathy analog of Horejev and Baburin, here we also review two possibilities: quaternion communication and also quantum communication based on quantum noise. Further research is recommended in the direction outlined herein.

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Aim of this paper: We discuss possibilities to go beyond 4G and 5G network, and avoid the unnecessary numerous health/diseases problems caused by massive 5G network. *Contribution*: We consider quaternionic communication and quantum communication based on quantum noise, which are largely unnoticed in literature. *Limitation*: We don't provide scheme for operationalization, except what we have provided in other paper.

Keywords: quantum entanglement, quantum communication, consciousness, superluminal communication, action at a distance.

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Quote: "The Hertz wave theory of wireless transmission may be kept up for a while, but I do not hesitate to say that in a short time it will be recognized as one of the most remarkable and inexplicable aberrations of the scientific mind which has ever been recorded in history." —Nikola Tesla, *The True Wireless*, 1919.

1. Introduction

In line with the rapid development of new branch of foundational mathematics, i.e. Neutrosophic Logic, here we discuss potential application of NL theory in the field of telecommunication. See for recent papers on NL: [31-35]. It is known that nowadays telecommunication systems are predominated by RF systems, including numerous wireless systems, such as 4G Wi-Fi, 4G network etc. And the world is now in transition stage towards 5G network deployment.

A growing number of individuals are coming together in many countries - to attempt to block or stop the current telecoms roll-out of 5G electromagnetic microwave radiation which has proved to be extremely harmful to all sentient life forms, including plant life.[4]

It would prove invaluable if some methods could be found to render the 5G millimetre wave transmissions ineffective. In other words, to

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4   A brief explanation here: https://www.5gspaceappeal.org/the-appeal

block or dissolve their ability to irradiate surrounding matter/life. Our concern is not to find a way to 'to protect the individual' but to prevent whole areas from being affected by microwaves via the tens of thousands of transmission bases that 5G requires - and from satellite sources.

In literature, there are known proposals or experiments which were purported to suggest possible ways to develop superluminal communication, to name a few: Telluric wave and also Telepathy analog way. For instance, in biofield site, it is written, which can be paraphrased as follows:

> "Torsion fields is one of the names given to the more unpretentious parts of the biofield. Torsion fields have additionally been alluded to as orgone, od, tachyon, aether, Tesla waves, scalar waves, the zero point field and then some. There is no settled upon logical agreement on these increasingly inconspicuous parts of the biofield. Torsion fields are guessed to the moderating mode for separation recuperating, which happens immediately and which research has been demonstrated that to be difficult to be transmitted through exemplary electromagnetic frequencies."[5]

See also Horejev and Baburin's paper [27]. Besides, there are also other suggestions of telepathic analog communications [28-30].

From Neutrosophic Logic perspective, we need to distinguish the subluminal communication from superluminal communication. In fact, Smarandache's Hypothesis states that there is no speed limit of anything, including light and "particles [16]. One of us (FS) also wrote in this regards:

> "In a similar way as passing from Euclidean Geometry to Non-Euclidean Geometry, we can pass from Subluminal Physics to Superluminal Physics, and further to Instantaneous Physics (instantaneous traveling). In the lights of two consecutive successful CERN experiments with superluminal particles in the Fall of 2011, we believe these two new fields of research should begin developing. A physical law has a form in Newtonian physics, another

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5   https://www.biofieldlab.com/whatisthebiofield

form in the Relativity Theory, and different form at Superluminal theory, or at Instantaneous (infinite) speeds – according to the S-Denying Theory spectrum. First, we extend physical laws and formulas to superluminal traveling and to instantaneous traveling. Afterwards, we should extend existing classical physical theories from subluminal to superluminal and instantaneous traveling."[6]

While the idea behind Smarandache hypothesis is quite simple and based on known hypothesis of quantum mechanics, called Einstein-Podolski-Rosen paradox, in reality such a superluminal physics seems still hard to accept by majority of physicists.

The background idea and our motivation for suggesting to go beyond RF/subluminal communication towardssuperluminal communication are two previous papers: (a) there will be more than 720! (factorial) types of new diseases which may arise, if the 5G network is massively implemented – and the present covid-19 pandemic may be just the beginning; (b) in a recent paper [14], we describe a model of quantum communication based on combining consciousness experiment and entanglement, which can serve as impetus to stop 5G-network-caused diseases, and (c) another recent paper that we presented in CTPNP 2019, where we discuss a realistic interpretation of wave mechanics, based on a derivation of Maxwell equations from quaternionic Dirac equation [36]. From these previous papers, we come to conclusion to superluminal communication is not only possible, but it is indeed embedded in quaternionic Maxwell equations, which are close to their original idea by Prof. James Clerk Maxwell.

Therefore, in this paper we consider superluminal physics and superluminal communication as a bridge or intermediate way between subluminal physics and action-at-a-distance (AAAD) physics,

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6   See Florentin Smarandache. url: http://fs.unm.edu/SuperluminalPhysics.htm

especially from Neutrosophic Logic perspective. Although several ways have been proposed to bring such a superluminal communication into reality, such as Telluric wave or Telepathy analog of Horejev and Baburin, here we also review two possibilities: quaternion communication and also quantum communication based on quantum noise.

These two choices will be discussed in section 4. But first of all we will discuss what is the difference between subluminal communication and superluminal communication.

2. What is the difference between subluminal communication and superluminal communication?

According to Belrose, which can be paraphrased as follows:

"The extremely plausibility of remote correspondences was established on the investigations of James Clerk Maxwell, and his conditions structure the premise of computational electromagnetics. Their accuracy was built up by Heinrich Hertz, when in 1887 he found EM radiation at UHF frequencies as anticipated by Maxwell. Since the spearheading work of Maxwell starting in the center 1850s, and of his adherents, a little gathering that got known as Maxwellians, which incorporated UK's Poynting and Heaviside, Maxwell's conditions have been read for longer than a century, and have demonstrated to be one of the best speculations in the historical backdrop of radioscience. For instance, when Einstein saw that Newtonian elements had as changed to be good with his exceptional hypothesis of relativity, he found that Maxwell's conditions were at that point relativistically right. EM field impacts are created by the increasing speed of charges, thus Maxwell had naturally incorporated relativity with his conditions." [25]

History also told us that around a century ago, there was proponents of wireless telegraphy, including Marconi, and opponents of it, including Tesla. And there were records of conflict between Tesla and Marconi. History also told us that around the same months after wireless telegraphy networks were installed everywhere, there

was a flu pandemic, just like we observed now. It is also known, that wireless telegraphy was based on RF technology, which is actually a subluminal physics, while Tesla preferred a superluminal technology beyond Radio Frequency (sometimes he referred to as *non-Hertzian waves*). See also [18-26].

For instance, Paul Brenner wrote:

> "Marconi's work is based on copies of patents of many other inventors without their permission. His so called original "two-circuit" device, a spark-gap transmitter plus a coherer-receiver, was similar to those used by Oliver Lodge in a series of worldwide reported tests in 1894. Tesla disputed that Marconi was able to signal for greater distances than anyone else when using the spark-gap and coherer combination. In 1900 Alexander Stepanovich Popov declared to the Congress of Russian Electrical Engineers: "[…] *the emission and reception of signals by Marconi by means of electric oscillations [was] nothing new. In America, the famous engineer Nikola Tesla carried the same experiments in 1893.*" [20]

It is also known from history books, that in the last century, the understanding of the nature of electromagnetic phenomena was proceeding with a constant rivalry between two concepts of interaction: namely, Newton instantaneous *action at a distance* (IAAAD) and Faraday-Maxwell *short-range interaction*. Finally, the discovery of Faraday's law of induction (explicit time dependence of electromagnetic phenomena) and the experimental observation of electromagnetic waves seemed to confirm the short-range interaction. Nevertheless, the idea of IAAAD still has many supporters. Among the physicists who have developed some theories based, in any case, on this concept, we can find names such as Tetrode and Fokker, Frenkel and Dirac, Wheeler and Feynman, and Hoyle and Narlikar. This interest in the concept of IAAAD is explained by the fact that classical theory of electromagnetism is an unsatisfactory theory all by itself, and so there have been many attempts to modify either the Maxwell equations or the principal ideas of electromagnetism.

From Logic to Realism

As Augusto Garrido wrote in his review to Chubykalo et al's book:

> "On the other hand, the famous article *"Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?"* by Einstein, Rosen and Podolsky published in Physical Review in 1935 revived this discussion in a new panorama. In this article Einstein made public his position against the Copenhagen interpretation of the quantum mechanics. The controversy unleashed since then made this article a very popular one for its implications in our physical and philosophical understanding of the physical reality. The main objective of this article was to demonstrate that the quantum mechanics, the same way the Newtonian mechanics was for the relativistic mechanics, is an incomplete theory, and therefore, transitory of reality. For that reason Einstein made evident what is now known as the EPR paradox. According to EPR quantum mechanics is no local theory, that is to say, it permits action at a distance and, that is forbidden by the relativity theory, instantaneous action at a distance. Unfortunately for Einstein, and for common sense the experiment performed by Aspect seems to indicate that the IAAAD following from quantum mechanics exists. As a consequence of this confusion, physicists are divided in two big groups according their position about IAAAD. These disputants are the quantum physicists and the relativists, who, almost after a century, have not been able to answer the old question whether the subject of their studies is a complete and integrated Universe – a physical Universe in its own right – or simply a assemblage of locally interacting parts."[15]

Therefore, to summarize the above paragraph, it seems we can distinguish among few technologies for communication:

- Subluminal RF physics ⇸ subluminal wave ⇸ subluminal communication
- Close to light speed physics ⇸ relativistic wave
- Superluminal physics ⇸ superluminal wave ⇸ superluminal communication
- Action at a distance physics ⇸ AAAD/quantum communication

From *Neutrosophic Logic* perspective, we can see that superluminal physics and superluminal communication are an intermediate way between the subluminal physics and AAAD physics, because in NL theory there is always a possibility to find a third way or intermediate state.

Summarizing:

> Standpoint A (subluminal) → Intermediate (superluminal) → Standpoint B (AAAD)

In the next sections, we will discuss shortly quantum entanglement and how it can be used in developing new telecommunication technologies.

3. What is quantum entanglement?

In its simplest form the quantum theory's features can be reduced to: (a) wave function description of microscopic entities and (b) entanglement. Entanglement is a key property that makes quantum information theory different from its classical counterpart.[14] According to Scolarici and Solombrino [5]:

> The essential difference in the concept of state in classical and quantum mechanics is clearly pointed out by the phenomenon of entanglement, which may occur whenever the product states of a compound quantum system are superposed. Entangled states play a key role in all controversial features of QM; moreover, the recent developments in quantum information theory have shown that entanglement can be considered a concrete physical resource that it is important to identify, quantify and classify.

Nonetheless, they concluded: "our research has pointed out a puzzling situation, in which the same state of a physical system is entangled in CQM, while it seems to be separable in QQM."

While entanglement is usually considered as purely quantum effect, it by no means excludes possibility to describe it in a classical way.

In this regards, from history of QM we learn that there were many efforts to describe QM features in more or less classical picture. For example: Einstein in 1927 presented his version of hidden variable theory of QM, starting from Schrödinger's picture, which seems to influence his later insistence that "God does not play dice" philosophy. [6][7]

Efforts have also been made to extend QM to QQM (quaternionic Quantum Mechanics), for instance by Stephen Adler from IAS.[8]

But in recent decades, another route began to appear, what may be called as Maxwell-Dirac isomorphism route, where it can be shown that there is close link between Maxwell equations of classical electromagnetism and Dirac equations of electron. Intuitively, this may suggest that there is one-to-one correspondence between electromagnetic wave and quantum wave function.

4. Two possible ways of superluminal communications

4.a. Maxwell-Dirac isomorphism through Quaternion algebra

Textbook quantum theory is based on complex numbers of the form $a_0 + a_1 i$, with i the imaginary unit $i^2 = -1$. It has long been known that an alternative quantum mechanics can be based on the quaternion or hyper-complex numbers of the form $a_0 + a_1 i + a_2 j + a_3 k$, with i, j, k three non-commuting imaginary units.[8]

On the other hand, recognizing that the Maxwell's equations were originally formulated in terms of quaternionic language, some authors investigate formal correspondence between Maxwell and Dirac equations. To name a few who worked on this problem: Kravchenko and Arbab. These authors have arrived to a similar

conclusion, although with a different procedures based on Gersten decomposition of Dirac equation.[4]

This MD isomorphism can also be extended further to classical description of boson mass which was usually called Higgs boson[3], so it may be a simpler option compared to scale symmetry theory.

4.b. Quaternionic QM and Entanglement

Having convinced ourselves that Maxwell-Dirac isomorphism has sufficient reasoning to consider seriously in order to come up with realistic interpretation of quantum wave function, now let us discuss QQM and entanglement.

Singh & Prabakaran are motivated to examine the geometry of a two qubit quantum state using the formalism of the Hopf map. However, when addressing multiple qubit states, one needs to carefully consider the issue of quantum entanglement. The "quaternions" again come in handy in studying the two qubit state. [10]

In his exposition of Quaternionic Quantum Mechanics, J.P. Singh concluded that [9]:

"Having established the compatibility of the Hopf fibration representation with the conventional theory for unentangled states, let us, now, address the issue of measurability of entanglement in this formalism. In the context, "Wootters' Concurrence" and the related "Entanglement of Formation" constitute well accepted measures of entanglement, particularly so, for pure states. …

It follows that any real linear combination of the "magic basis" would result in a fully entangled state with unit concurrence. Conversely, any completely entangled state can be written as a linear combination in the "magic basis" with real components, up to an overall phase factor. In fact, these properties are not unique to a state description in the "magic basis" and hold in any other basis that is obtained from the "magic basis" by an orthogonal transformation…"

Singh & Prabakaran also suggest that this quaternionic QM may be useful for exploring quaternionic computing.[10]

Therefore, it shall be clear that entanglement and quantum communication have a sound theoretical basis.

4.c. Basic principles of quantum communication based on quantum noise

Our proposed communication method can provide an infinite number of infinite bandwidth communications channels for each user. See our recent paper describing one of plausible way to do quantum communication [14].

Communication using this method travels much faster than light. It does not use radio waves and does not need wires.

It cannot be monitored nor tracked nor interfered with. It cannot be regulated due to the infinities involved, and due to the fact that it is unmonitorable. Each user benefits personally from the perfect information security provided by quantum communications.

Quantum communication does not harm any form of life, nor the environment, in any way, as quantum events are, and always have been, constantly a part of the Natural Environment. This method is not related to "Q-bits" nor "quantum teleportation" nor "quantum amplification" approaches, in any way. It is based on the Schrödinger equations of Quantum Mechanics. One of the features of the Schrödinger equations is a descriptive prediction of what is called "quantum noise". This is the constant "hiss" that one hears when using an FM radio, and setting the frequency selector in between active broadcast channels. The sound is called "quantum noise" Quantum noise is observable at every location in the infinite volume universe.

Quantum noise is the result of nonlocal Subquantum processes which cause apparently random quantum behaviors in physical systems, particularly those which involve electric, magnetic, or electromagnetic fields.

The situation is described by the quantum observable A of the system. This boils down to the fact that there is an expectation value in situations which involve quantum noise, which should normally appear as perfect randomity in the quantum system we are observing. Perfect randomity is called 3rd Order randomity and is completely unpredictable.

3rd Order randomity then represents the normal behavior of our quantum system as it interacts with Subquantum entities which are interacting with the system from up to infinity away and with up to an infinite velocity. 3rd Order randomity is the quantum expectation value of all Natural systems, in all locations and at all times.

There are ways to detect and predict quantum noise and the physical changes produced by quantum noise in quantum systems (These methods will not be discussed at this time). When we detect the quantum noise, for example, in the form of "white noise" between radio stations, we expect the quantum spectrum centered on the channel of our receiver to exhibit 3rd Order randomity in both electromagnetic frequency and magnitude domains, in our selected channel. However, environmental factors such as the presence of physical or non-physical forms of Consciousness can act on the 3rd Order randomity so as to bring predictability and order to the stream of random number which our E/M detector array passes on to our discriminator system.

Related to this, it was proved by instrumented experiments in the USA and in France during the 1990s that *the Attention, Intentions, and Emotional State* of operators of symplectic, complex, and standard electromagnetic transmission facilities, resulted in instantaneous changes in the radiation patterns of the transmission antennas.

All of the above mentioned facts can be useful for developing a working quantum communication device, see for further exposition of our method in [14].

5. Concluding remarks

Despite its enormous practical success, many physicists and philosophers alike agree that the quantum theory is so full of contradictions and paradoxes which are difficult to solve consistently. Even after 90 years, the experts themselves still do not all agree what to make of it. In this paper, we review the most puzzling feature of QM, i.e. entanglement.

In the meantime, the problem of the dangers of 5G creates a potential to develop new solutions of telecommunications, without having to use 5G/RF technologies. Therefore, in this paper we consider superluminal physics and superluminal communication as a bridge or intermediate way between subluminal physics and action-at-a-distance (AAAD) physics, especially from Neutrosophic Logic perspective. Although several ways have been proposed to bring such a superluminal communication into reality, such as Telluric wave or Telepathy analog of Horejev and Baburin, here we also review two possibilities: quaternion communication and also quantum communication based on quantum noise.

From *Neutrosophic Logic* perspective, we discuss on superluminal physics and superluminal communication as an intermediate way between the subluminal physics and AAAD physics, because in NL theory there is always a possibility to find a third way or intermediate state.

Summarizing:

> Standpoint A (*subluminal*) → Intermediate (*superluminal*) → Standpoint B (AAAD)

This paper was inspired by an old question: Is there an alternate way to communication beyond RF method? Further research is recommended for future implementation.

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Leading From Powerlessness: A Third-way Neutrosophic Leadership Model for Developing Countries

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Abstract

We argue that there are essentially two chief leadership models: the hard-style and soft-style leadership. From Neutrosophic point of view, there can be a third way, between hard-style leadership and soft-style leadership model, which may be more relevant to many of people in developing countries as well as in developed countries, who feel "*powerless*" and "*hopeless*" especially in this pandemic situation. We prefer to call this new approach: leading from powerlessness. The third-way Neutrosophic leadership model may also mean partially hard-style and partially softstyle leadership.

Keywords: Leadership development, leading from powerlessness, leading at zero, community leaders, developing countries, neutrosophic logic, Leipzig Leadership Model.

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1. Introduction

Leadership has always been challenging. This holds particularly true in times of fundamental change, which, driven by globalization and digitalization, we are experiencing nowadays.[3]

Timo Meynhardt wrote in his article on public value creation [2]:

> "…leaders are highly instrumental not only in making markets, but in doing so also building societies. In modern times, such value creation for society has had an indispensable impact, improving the quality of life on our planet in many respects. … For many leaders, thinking in public value terms comes naturally; for others, seeing themselves as creating or destroying public value requires considerably more effort."

Most of us may think that to lead well, one needs power. Not infrequently, prospective leaders who tend to be charismatic think that "I have to be successful and rich first, then people will listen to what I have to say. Because if I can't prove the success of God's words, how can people believe?" At first glance, maybe many think that this argument makes sense, but if we think about it, this mindset is actually a worldly mindset, that a leader must be someone who is strong, powerful, authoritative, and if possible super-rich and so on. We might call this pattern a hard-style leadership.

However, there are other patterns, such as Jesus, Gautama Buddha, Mahatma Gandhi or Martin Luther King, Jr. more aptly called, leading with softness (*soft-style* leadership).

From Neutrosophic point of view, there can be a third way, between hard-style leadership and soft-style leadership model, which may be more relevant to many of people in developing countries as well as in developed countries, who feel "powerless" and "hopeless" especially in this pandemic situation. So what can we do?

This article addresses the topic of leadership from the slightly different perspective we are familiar with, with an emphasis on "leading from powerlessness."

2. Accept our weaknesses

One of the basic premises of various (Western) leadership theories is that a leader must take all the initiatives, and also must be a demigod figure. Yet this is clearly impossible to sustain in the long term. There are many failures of modern leaders today due to the impossibility of demands to be superhuman, to work long hours a day, and still have to lead this and that events, counsel people and so on. And when he failed, their people became disappointed and then frustrated.

Even though every human being has their own strengths and weaknesses, there is also a leader who has a talent in teaching, wisdom, execution skills and so on.

The author is inspired by the example of the book by Furtick, (un)-qualified, and Joe Vitale's book on the ancient Hawaiian method (*Zero Limit*).

The point is that being a leader today, you need to be an authentic, learn to accept your weaknesses and go from there.

Like a SWOT analysis, a prospective leader must identify the strengths, weaknesses and talents that the Universe has given, and learn to develop these strengths, while surrounding himself with reliable people who can complement his weaknesses.

So it's not by creating a superman image, but instead developing other people with a dialogical leadership pattern. That's a good way to develop authentic leadership patterns in today's digital era: *be yourself, focus on your strengths, keep your weaknesses at check, and stay humble.*

3. Implications of Leadership at Zero

Maybe someone here asks: why shall we propose a new leadership concept? Isn't there a natural leadership pattern that is widely applied in industry, seminars and other organizations?

In this article, we submit to a new term: *"leading from powerlessness,"* where people without real power at hands, still can do many initiatives

for public good [2]. For instance, local farmers in Bali Island, Indonesia, used to coordinate by themselves on how to share water resources for their farms, without much influence from authority (it is called Subak system). There is need for local leaders who sometimes are referred to as *informal leaders*. And Alvin Toffler has predicted that informal economy become increasingly important nowadays. For clarity, we don't think that our model of leading from powerlessness is similar to servant leadership, because servant leadership still assumes that a leader to be almost perfect superhuman. The third-way Neutrosophic leadership model may also mean partially hardstyle and partially soft-style leadership. However, it should be clear that we don't say that formal leaders are not required, but there should be coherent and constant communications in order to achieve public good [2].

Indeed, servant leadership has been known for a long time, especially by Greenleaf. The concept of Servant Leadership from Robert Greenleaf, a leader at *the American Telephone and Telegraph company* in the 1970s was initially considered an expression of an anti-establishment attitude popular at that time. It turns out that the concept was welcomed to India. From 2015 to 2019 alone, there were more than 100 articles and two meta-analyzes published on Servant Leadership.

The essence of the concept of Servant Leadership is leadership that involves followers in various dimensions both relational, ethically, emotionally, and spiritually so that they grow into complete personalities according to their potential. Greenleaf, the originator of this concept, states that the leader is able to do this because, he lives his main role as a servant, then as a leader. Also he displays Servant leadership by empowering and developing others through humility, authenticity, acceptance, and stewardship and giving direction to himself as a leader. So, the Servant leader is someone who strives to recognize the uniqueness of each of his followers, gives them space to independently learn with his guidance, and is given warm

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support. Thus, followers are treated not only as objects of the program, planning, or development process of the institution in which they work but as subjects.

So, servant leadership is a leadership model that rests on service in the sense of providing service to others by synergizing with those being led, and building togetherness so that together can share when making an organizational decision (Spears, 2010). Northouse (2013) states that Servant Leadership focuses on making leaders more sensitive and attentive to the problems that the people they lead have, a sense of empathy and can develop them towards a better direction.

However, there are some criticisms of the servant leadership model in practical application in the real world, for example that servant leadership may not be suitable in the military or in prisons.

That is why, in the opinion of these authors, "leading from powerlessness" model may be more suitable for the real situation in developing countries, when many informal leaders do not hold positions of authority in government.

4. Comparison with Leipzig Leadership Model

There is not much similar concept available at now that we can learn toward developing this idea of leading from powerlessness, except a short article by Vaclav Havel, from which he wrote it in a book: *The power of powerless*.

Of one particular development in leadership theory that we can mention here is : the Leipzig Leadership model.

Leadership is about more than simply wielding power. *The Leipzig Leadership Model* places the importance of consistently contributing to a greater good at the centre of the concept of leadership. The critical factor is what leaders use their power for and what they use as orientation in the process.

As Tessen von Heydebreck wrote, a leader is required to find a balance between corporate/organization values/goals and public values/goals:

"All individuals, from simple laborers to the executive board, are constantly confronted with a number of leadership tasks in their field of activity but remain dependent on somebody else's leadership in many other areas within their position in society as a whole. Good leadership is, in this respect, a substantial link amongst humans living together successfully. … Entrepreneurial optimism and responsible action are central theoretical as well as practical guiding principles which determine the successful realization of forward-looking prospects of our present time both on an individual level as well as for society as a whole. The Leipzig Leadership Model presented in this publication is a trendsetting step in that direction."[3]

HHL's Leipzig Leadership model is developed from such a premise. See the following illustration.
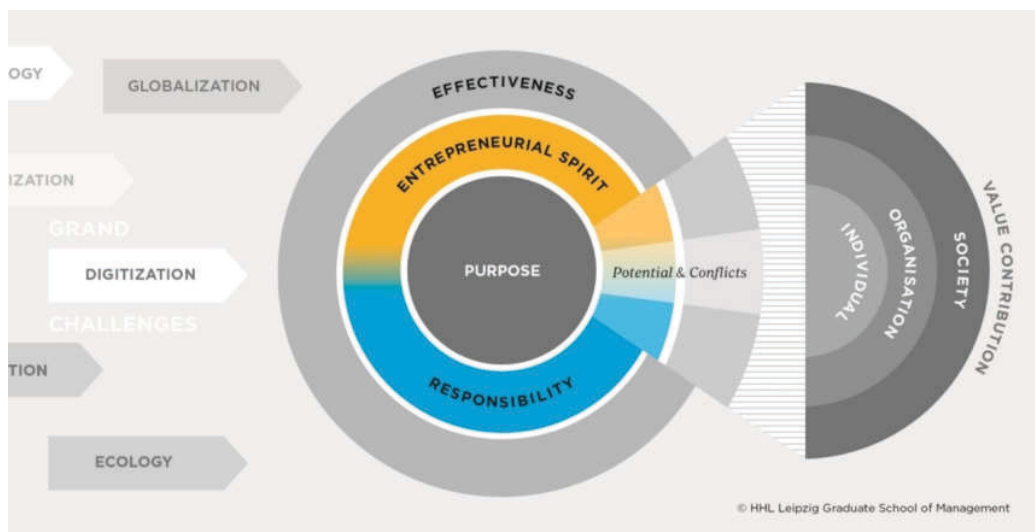
Illustration 1. Leipzig Leaderhip Model

From the above illustration, it shall be clear that a good leader should bring a balance between internal values such as effectiveness,

entrepreneurial spirit and responsibility of their actions, in tune with external factors such as globalization, digitization and ecology.

5. Comment to Leipzig Leadership Model

While LLM/HHL is a welcome development of leadership model for business and modern organizations, nonetheless it is quite lacking in giving some role to informal leaders, who are typically considered outside the decision making structure of the corporations. Yes, that is one problem in this highly industrial society that decisions are often made from the top-to-bottom, while people on the streets are typically considered as outside of the equations.

Such a problem of technocratic policy making method has been predicted in the last chapter of Alvin Toffler's book: *Future Shock*. Writing during the late 1960s Toffler summarized this thesis thus [5]: "[I]n three short decades between now and the turn of the next millennium, millions of psychologically normal people will experience an abrupt collision with the future. Affluent, educated citizens of the world's richest and most technically advanced nations, they will fall victim to tomorrow's most menacing malady: the disease of change. Unable to keep up with the supercharged pace of change, brought to the edge of breakdown by incessant demands to adapt to novelty, many will plunge into future shock. For them the future will have arrived too soon" (Cross 1974).

In the last chapter of his best-selling futuristic book, Toffler suggested that it would be highly imperative to get out from the failure of technocratic decision making processes.

In other words, we need to go *to post-technocratic decision making* toward inclusion of informal leaders and also other participants in the society instead pursuing elite-only camps, be it WHO or WEF.

In that sense, we think that our proposed model of leading from powerlessness can be considered as necessity to be included for

community leaders. This approach can be combined with coach-leadership style [8].

6. A story on how leading from powerlessness was put into practice: Art as cultural resistance in Romania

As one of us (FS) experienced around 70s in his native country back then, art can be used as cultural resistance; and it can be seen as a way of leading from powerlessness. During the Ceausescu's era he got in conflict with authorities.

In 1986 he did the hunger strike for being refused to attend the International Congress of Mathematicians at the University of Berkeley, then published a letter in the Notices of the American Mathematical Society for the freedom of circulating of scientists, and became a dissident. As a consequence, he remained unemployed for almost two years, living from private tutoring done to students. The Swedish Royal Academy Foreign Secretary Dr. Olof G. Tandberg contacted him by telephone from Bucharest. Not being allowed to publish, he tried to get his manuscripts out of the country through the French School of Bucharest and tourists, but for many of them he lost track. Escaped from Romania in September 1988 and waited almost two years in the political refugee camps of Turkey, where he did unskilled works in construction in order to survive: cleaner, house painter, whetstoner. Here he kept in touch with the French Cultural Institutes that facilitated him the access to books and rencontres with personalities. Before leaving the country he buried some of his manuscripts in a metal box in his parents vineyard, near a peach tree, that he retrieved four years later, after the 1989 Revolution, when he returned for the first time to his native country. Other manuscripts, that he tried to mail to a translator in France, Chantal Signoret from the Université de Provence, were confiscated by the secret police and never returned. He wrote hundreds of pages of diary about his life in the Romanian dictatorship (unpublished), as a cooperative teacher in

Morocco ("Professor in Africa", 1999), in the Turkish refugee camp ("Escaped... / Diary From the Refugee Camp", Vol. I, II, 1994, 1998), and in the American exile - diary which is still going on. But he's internationally known as the literary school leader for the "paradoxism" movement which has many advocates in the world, that he set up in 1980, based on an excessive use of antitheses, antinomies, paradoxes in creation paradoxes - both at the small level and the entire level of the work - making an interesting connection between mathematics, philosophy, and literature [http://fs.unm.edu/a/paradoxism.htm]. He introduced the 'paradoxist distich', 'tautologic distich', and 'dualistic distich', inspired from the mathematical logic [http://fs.unm.edu/a/literature.htm].

Literary experiments he realized in his dramas: Country of the Animals, where there is no dialogue!, and An Upside- Down World, where the scenes are permuted to give birth to one billion of billions of distinct dramas! http://fs.unm.edu/a/theatre.htm].

He stated: *"Paradoxism started as an anti-totalitarian protest against a closed society, where the whole culture was manipulated by a small group*. Only their ideas and publications counted. They couldn't publish almost anything.

Then, I said: Let's do literature... without doing literature! Let's write... without actually writing anything. How? Simply: literature-object! 'The flight of a bird', for example, represents a "natural poem", that is not necessary to write down, being more palpable and perceptible in any language that some signs laid on the paper, which, in fact, represent an "artificial poem": deformed, resulted from a translation by the observant of the observed, and by translation one falsifies. Therefore, a mute protest we did!

And so on, until he migrated to USA and gradually became appointed as a full professor of mathematics at The University of New Mexico.

7. Concluding remarks

From Neutrosophic point of view, there can be a third way, between hard-style leadership and soft-style leadership model, which may be more relevant to many of people in developing countries as well as in developed countries, who feel "powerless" and "hopeless" especially in this pandemic situation.

This article addresses the topic of leadership from a slightly different perspective than what we are familiar with, emphasizing on "leading from powerlessness."

We also discuss two stories of our own, on how this new concept can be put into practice.

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Appendix: Short biographies by Dr. Said Broumi

a. Prof. Florentin Smarandache Graduated from the Department of Mathematics and Computer Science at the University of Craiova in 1979 first of his class graduates, earned a Ph. D. in Mathematics from the State University Moldova at Kishinev in 1997, and continued postdoctoral studies at various American Universities such as University of Texas at Austin, University of Phoenix, Okayama University of Sciences (Japan), etc. after emigration. In U.S. he worked as a software engineer for Honeywell (1990-1995), an adjunct professor for Pima Community College (1995-1997), in 1997 Assistant Professor at the University of New Mexico, Gallup Campus, promoted to Associate Professor of Mathematics in 2003, and to Full Professor in 2008. Between 2007-2009 he was the Chair of Math & Sciences Department. In mathematics he introduced the degree of negation of an axiom or theorem in geometry (see the Smarandache geometries which can be partially Euclidean and partially non-Euclidean, 1969, http://fs.unm.edu/Geometries. htm), the multi-structure (see the Smarandache n-structures, where a weak structure contains an island of a stronger structure, http://fs.unm.edu/Algebra.htm), and multi-space (a combination of heterogeneous spaces) [http://fs.unm.edu/Multispace.htm]. He created and studied many sequences and functions in number theory. He generalized the fuzzy, intuitive, paraconsistent, multi-valent, dialetheist logics to the 'neutrosophic logic' (also in the Denis Howe's Dictionary of Computing, England) and, similarly, he generalized the fuzzy set tothe 'neutrosophic set' (and its derivatives:

'paraconsistent set', 'intuitionistic set', 'dialethist set', 'paradoxist set', 'tautological set') [http://fs.unm.edu/eBook-Neutrosophics6.pdf]. He then generalized it to Refined Neutrosophic Logic, where T can be split into subcomponents $T_1, T_2, ..., T_p$, and I into $I_1, I_2, ..., I_r$, and F into $F_1, F_2, ...,F_s$, where p+r+s = n ≥ 1. Even more: T, I, and/or F (or any of their subcomponents T_j, I_k, and/or F_l) could be countable or uncountable infinite sets.

Twelve books were published that analyze his literary creation, among them: "*Paradoxism's Aesthetics*" by Titu Popescu (1995), and "*Paradoxism and Postmodernism*" by Ion Soare (2000). He was nominated by the Academia DacoRomana from Bucharest for the 2011 Nobel Prize in Literature for his 75 published literary books.

Hundreds of articles, books, and reviews have been written about his activity around the world. The books can be downloaded from this *Digital Library of Science*: http://fs.unm.edu/ScienceLibrary.htm and from *Digital Library of Arts and Letters*: http://fs.unm.edu/Literature Library.htm. As a Globe Trekker he visited more than 60 countries that he wrote about in his memories (see his *Photo Gallery* at: http://fs.unm.edu/photo/GlobeTrekker.html).

International Conferences: First International Conference on Smarandache Type Notions in Number Theory, August 21-24, 1997, organized by Dr. C. Dumitrescu & Dr. V. Seleacu, University of Craiova, Romania. International Conference on Smarandache Geometries, May 3-5 2003, organized by Dr. M. Khoshnevisan, Griffith University, Gold Coast Campus, Queensland, Australia. International Conference on Smarandache Algebraic Structures, December 17-19, 2004, organized by Prof. M. Mary John, Mathematics Department Chair, Loyola College, Madras, Chennai - 600 034 Tamil Nadu, India. Personal web page: http://fs.unm.edu/
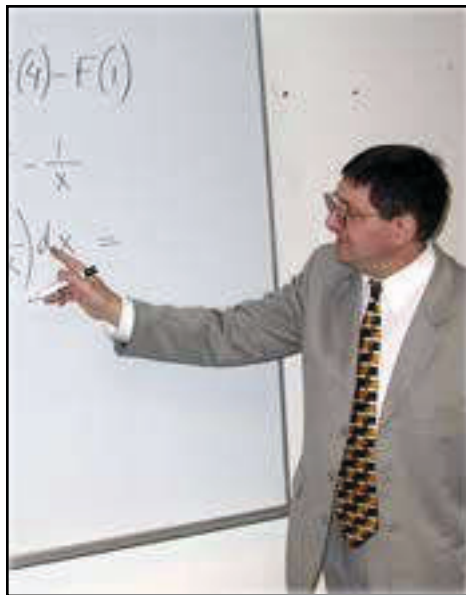
Prof. Florentin Smarandache, PhD. (postdoc)

b. Victor Christianto He was born in Indonesia, and studied engineering in a state university in East Java. In Dec. 2008 he was granted a scholarship to join a research group and study gravitation and cosmology at the Institute of Gravitation and Cosmology at RUDN, Moscow until June 2009. In September 2014, he completed graduate study in theology from Satyabhakti Advanced School of Theology, Indonesia. He worked temporarily at Lembaga SABDA around 2015. Later on, he began as a lecturer at Malang Institute of

Agriculture, and also at Satyabhakti Advanced School of Theology - Jakarta, Indonesia. He has been a close collaborator of Prof. Dr. Florentin Smarandache since 2005. He published more than 17 books mostly in astrophysics and cosmology, as joint work with Prof. Dr. Florentin Smarandache and other physicists.

Since March 2020, he joined with International Mariinskaya Academy, St. Petersburg, by invitation of Prof. Oleg Y. Latyshev, as a head of theology department; and also as a coordinator of *Halton Arp Institute*, by the same Mariinskaya Academy. The Halton Arp Institute is intended to continue discussions on non-standard cosmology theories etc., join and share your views in our online bulletin board: https://haltonarpinstitute.boards.net. His site is at: http://sttsati.academia.edu/VChristianto/Halton-Arp-Institute.

International Conferences: RIEECE conference, held at India, Aug. 2017 (affiliated with IEEE); CTPNP 2017 held at Bandung, Indonesia (affiliated with LIPI); ISCPMS, 26th July 2017, held at Nusa Dua, Bali Island (http://iscpms.ui.ac.id), 5th EuroSciCon conference on Plasma Physics, held at Stockholm (May 2019); CTPNP 2019 held at Malang, Indonesia (affiliated with LIPI); SMIC Conference at Aug. 2020, held by Universitas Negeri Jakarta, Indonesia; Conference on Transformative Theological Education, held at Nov. 2020, by OCRPL; Digital Seminar held in December 2020 by Baku Eurasian University, Azerbaijan; SENFA (one day physics seminar) held at December 2020 by Padjadjaran State University, Bandung, Indonesia. Get his book: https://www.morebooks.de/store/gb/book/seeking-a-theory-for-the-end-of-theworld/isbn/978-3-659-58074-1. Other url: http://researchgate.net/profile/Victor_Christianto

There is No Constant in Physics: a Neutrosophic Explanation

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Abstract

In Neutrosophic Logic, a basic assertion is that there are variations of about everything that we can measure; the variations surround three parameters called T,I,F (truth, indeterminacy, falsehood) which can take a range of values. Similarly, in this paper we consider NL applications in physics constants. Those constants actually all have a window of plus and minus values, relative to the average value of the constant. For example, *speed of light, c, can vary in a window up to +/- 3000 m/s*. Therefore it should be written: 300000 km/s +/- 3 km/s. We also discuss some implications of this new perspective of physics constants, including in gravitation physics etc.

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1. Introduction

For majority of physicists, constants play a fundamental role. Like an anchor for a ship, they allow physicists build theories on the ground of those constants as basic "known" quantities. However, in real experiments, there are always variation of those constants. Moreover, from Neutrosophic Logic perspective, those constants always fluctuate depending on various circumstances.

In Neutrosophic Logic, a basic assertion is that there are variations of about everything that we can measure, the variations surround three parameters called T,I,F (truth, indeterminacy, falsehood) which can take a range of values. Similarly, in this paper we consider NL applications in physics constants. Those constants actually all have a window of plus and minus values, relative to the average value of the constant. For example, *speed of light, c, can vary in a window up to +/– 3000 m/s.*[7] Therefore it should be written: 300000 km/s +/– 3 km/s.

We also discuss some implications of this new perspective of physics constants, including in gravitation physics etc.

It is our hope that this new perspective on physics constants will point to a more substantial and evidencebased approach to physics sciences.

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7 Note by one of us (RNB): "The data from the experiment was recorded in the actual handwritten log books from the actual MM experiments as up to plus and minus 3000 meters per second variation in the measured speed of light. I closely examined all the handwritten logs and lab notes personally. Most of the light speed excursions recorded in the actual log books were smaller than this. I recall calculating the average speed of light excursion to be in the vicinity of 300 meters per second. The apparatus was capable of measuring c to an accuracy of 0.00025 meters per second, as I recall. Both periodic and stochastic measurements of speed of light variances are recorded in the handwritten log books from the M-M experiments. Should be as listed: "variation of c is approximately within the range of plus or minus 3000 meters/second." No larger excursions were recorded." See also [10][11].

2. Definition

Neutrosophic Logic, as developed by one of us (FS), is generalization of fuzzy logic based on **Neutrosophy**. A proposition is t true, i indeterminate, and f false, where t, i, and f are real values from the ranges T, I, F, with no restriction on T, I, F, or the sum n=t+i+f. Neutrosophic logic thus generalises:

-   intuitionistic logic, which supports incomplete theories (for 0<n<100 and i=0, 0<=t,i,f<=100);
-   fuzzy logic (for n=100 and i=0, and 0<=t,i,f<=100);
-   Boolean logic (for n=100 and i=0, with t,f either 0 or 100);
-   multi-valued logic (for 0<=t,i,f<=100);
-   paraconsistent logic (for n>100 and i=0, with both t,f<100);
-   dialetheism, which says that some contradictions are true (for t=f=100 and i=0; some paradoxes can be denoted this way).

Compared with all other logics, neutrosophic logic introduces a percentage of "indeterminacy" - due to unexpected parameters hidden in some propositions. It also allows each component t,i,f to "boil over" 100 or "freeze" under 0. For example, in some tautologies t>100, called "overtrue".[1]

Neutrosophic Logic allows one to develop new approaches in many fields of science, including a redefinition of physics constants, as will be discussed in the next section.

3. Neutrosophic reasoning: There is no Physics Constant

In accordance with Neutrosophic Logic, actually all physics constants have a window of plus and minus values, relative to the average value of the constant. For example, variation of c is approximately within the range of plus or minus 3000 meters/second.

There may be larger excursions, but we would not expect larger excursions to happen very often. Probability considerations are thus also involved in determining the average value and the statistical extremes for the given constant.

There are also curves which vary according to the materials involved, and the environment. For example, most recently and most importantly, it has been realized that h and h_bar cannot be used for any material other than carbon black (soot).

All other materials must have their thermal emissions curve instrumented. Then the h and h_bar for that material can be calculated. But the values calculated are subject to modifications by the local environment. Unless

Both periodic and stochastic measurements of speed of light variances are recorded in the handwritten log books from the M-M experiments. Should be as listed: "variation of c is approximately within the range of plus or minus 3000 meters/second." No larger excursions were recorded." See also [10][11] the aether environment can be considered and measured, the calculated values of h and h_bar for the given material will not be as reliable as we might prefer. (It depends on the specific application which requires instrumented measurements of the thermal emissions curve of the given material.)

So there should be a way to produce an accurate thermal emissions curve using a neutrosophic approach. Because all thermal emissions curves have extremes from absolute zero to very high heat values. Neutrosophic modifications of Kirchoff's law of "blackbody radiation", and Planck's "constant" would be very useful. (See for instance, a report by Robitaille and Crothers on the flaws of Kirchoff law, [2-4]). It is worth noting here, that from dynamical perspective, Shpenkov argues for a redefinition of Planck constant: "The Planck constant h is the quantity the value of which is equal to the orbital action of the electron on the Bohr first orbit in the hydrogen atom, namely to its orbital moment of momentum P_{orb} multiplied by 2π, or it can be

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rewritten as: $h = 2\pi \cdot P_{orb}$." According to him, Planck constant also has acoustic origin. [5]

There are also physical situations where the variations of the value of one constant, directly alters the values of physically-related constants. The fine structure "constant" is an example of this kind of mutual influence. If the fine structure value changes, it changes the value of e, the charge of the electron. (Which informs us that the charge on the electron is an environmentally influenced Neutrosophic window.) Going the other way, if the value of e changes, it changes the value of the fine structure constant.

Another aspect of this to consider is that some constants-windows may not be perfectly symmetrical, but large on one side of the center value, and small on the other side, and exhibit dependence on the environment, such that under most conditions the value of the given "constant" would live inside the window, while there could be large asymmetrical extremes at other times, depending on the local and non-local environmental parameters of the aether, at the location where we are examining the measured value of the constant.

4. A few applications

At this point, some readers may ask: Can we get an example when a so-called constant has a value, while in another example the same so-called constant gets another value?

Answer: Gravitation is a good example. g changes depending on where and when it is measured. This is used in gravitational prospecting and by the GRACE experiment (NASA) which maps the gravitation variations of the Earth, over time. [6] In ref [6], they show many more data sets and graphical images showing gravitational variations on the Earth.
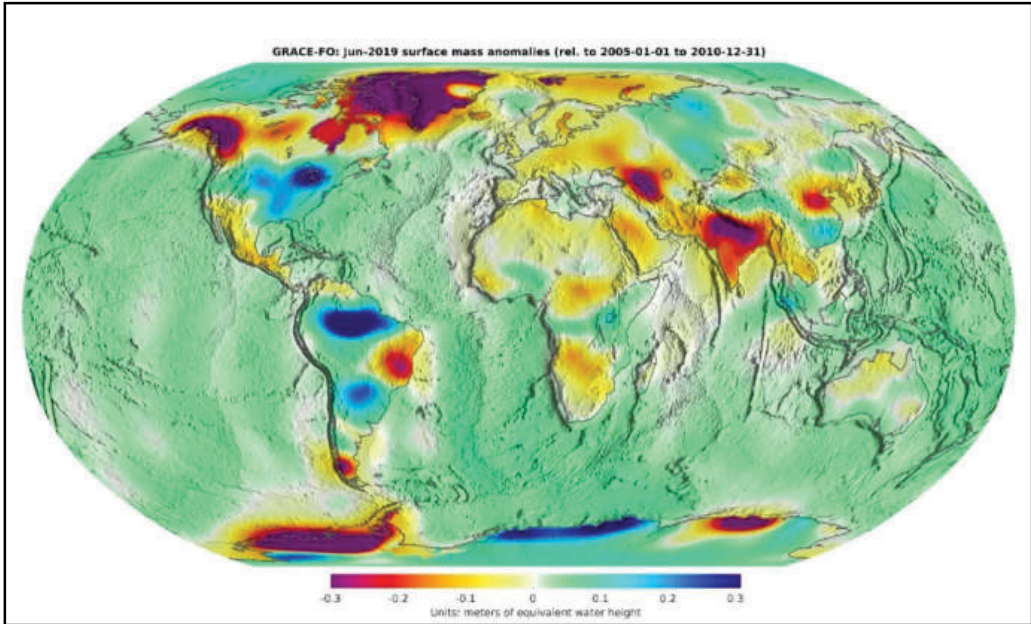
Figure 1. gravitational variations on the Earth. Source: [6]

Another article contains a good table of measurements of gravitation from 1798, until 2004 [7].

There is also a discussion of the increase in the force due to gravitation of the Earth, showing the dinosaurs would be crushed by their own weight if they were subjected to the gravitational force of the Earth today.

The *gravitational "constant"* is a good one to start with, since the variations can't be denied.

The next best one would be speed of light variations, although these days they refuse to allow one-way measurements of light velocity, because vast numbers of variations show up, depending on the time and place of the measurement. The mainstream insists that the speed of light can only be measured by round-trip measurements. This is because the light going back and forth along the same line results

in many of the measured one-way variations in the velocity, being averaged out.

Typically, speed of light experiments cook their books and throw out any large deviations in measured light velocity. This tactic is similar to even more egregious cheating methods which are used by "global warming" and "climate change" advocates, paid for by the oil companies.

The next best one would be variations in Planck's "constant". h and h_bar are only valid for carbon black (soot). Every different material has a different thermal radiation when plotted on a thermal radiation curve. Some examples are displayed by Robitaille and Crothers in some of their presentations on the original "black body" thermal radiation constant known as Kirchoff's law, which was never measured by instrumented experiments, and was accepted as universally valid by Planck, who never did experiments to measure the thermal radiation curves of anything.[2-4]

5. Conclusions

In this article, we discussed how physics constants can vary in a wide range of values, in particular from Neutrosophic Logic perspective. We also discussed some examples, including variation in Earth gravitation measurements, speed of light measurement, and also Planck constant. It is our hope that this short discussion will be found as good impetus for a new direction in physics, more corresponding to experimental data, toward: *"evidencebased physics."* This new direction is in direct contrast to the unfortunate development of theoretical physics in the last 30-40 years with their overreliance on too much abstraction, oversophisticated mathematics, and other fantasies, which often have less and less to do with the actual physics as an empirical science. Two books can be mentioned here in relation to the present situation of physics science, see [8][9].

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A Short Remark on Bong Han Duct System (PVS) as a Neutrosophic Bridge Between Eastern and Western Medicine Paradigme

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Abstract

In a previous paper in this journal (IJNS), it is mentioned about a possible approach of *"curemony"* as a middle way in order to reconcile Eastern and Western's paradigms of medicine [1]. Although it is known in literature that there are some attempts to reconcile between Eastern and Western medicine paradigms, known as *"integrative medicine,"* here a new viewpoint is submitted, i.*e.* Bong Han *duct* system (PVS), which is a proof of Meridian system, can be a bridge between those two medicine paradigms in neutrosophic sense. This can be considered as a Neutrosophic Logic way to bridge or reconcile the age-old debates over the Western and Eastern approach to medicine. It is also hoped that there will be further research in this direction, especially to clarify the distinction between Pasteur's *germ*

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theory and Bechamp's *microzyma theory*. More research is obviously recommended. **Motivation of this paper**: to prove that Neutrosophic Logic offers a reconciliation towards better dialogue between Western and Eastern medicine systems. **Novelty aspect**: it is discussed here how Bong Han Duct system offers a proven and observable way to Meridian system, which in turn it can be a good start to begin meaningful dialogue between Western and Eastern systems.

Keywords: Pasteur, microzyma, Bechamp theory, meridian system, Bong Han Kim, Bong Han duct system, neutrosophic logic

1. Introduction

In the light of recent advancements on the use of Neutrosophic Logic in various branches of science and mathematics, this paper discuss possible application in medicine philosophy. See for instance [13-19].

This paper is inspired partly by the movie, *Jewel in the Palace* (Dae Jang Geum). One of these authors (VC) has a younger brother who likes to watch that movie. He already completed watching the entire series (more than 70 episodes) more than three times. According to a good documentary on that movie [11]:

A history book courageous woman is reawakened in a hit TV dramatization. In 1392, the Joseon Dynasty appeared. The rulers of Joseon would lead the Korean landmass until the administration fell, to be supplanted by a Japanese provincial system, in 1910. All things considered, Joseon's heritage suffers: It was one of the world's longest-running imperial administrations. In the "Joseon-Wangjo-Sillok" - "The Annals of the Joseon Dynasty;" the official record of the realm - a lady named "Daejanggeum" is referenced. She lived during the rule of King Jungjong (1506~1544), and the archives disclose to us that she had been a low-positioning court woman who picked up the ruler's trust and was elevated to the most noteworthy positioned woman in the kitchen, and furthermore to regal doctor. In one notice in the archives, the ruler states, *"I have nearly recuperated from the sickness of a couple of months. So I should offer honors to the individuals who put forth bunches of*

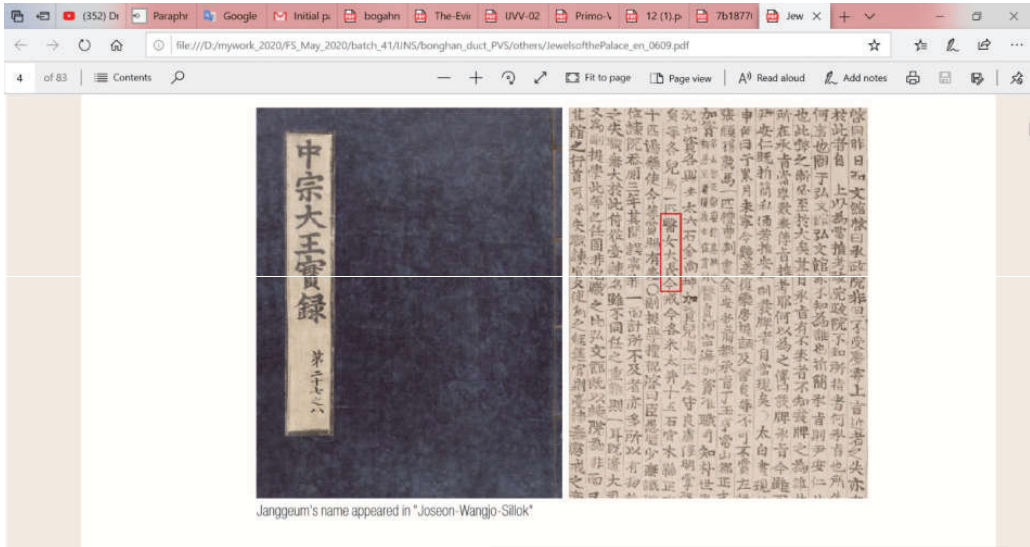*attempts to fix me. Give the imperial doctors and euinyeo (female associate) Daejanggeum blessings.*"

Figure 1. Jang Geum name was recorded in the "Joseon-Wangjo-Sillok" - "The Annals of the Joseon Dynasty." After Kang Min Su [11]

What is more interesting to these authors, is not only the depiction of royal palace at the time, but also the use of royal cuisine as medication, beside the use of acupuncture methods.[11]

Now it seems obvious for Western scholars to pause at this point and ask: *"What? Acupuncture? Are you joking?"*

This short review paper is discussing that approach: whether it is possible to reconcile both Eastern and Western medicine paradigms from the view point of Bong Han Kim's duct system (PVS) and its relation to Bechamp's microzyma.

As it is brought up in [1], it is notable by most medication experts, that Western way to deal with medication depends on *"assaulting"* an infection, individually. This is called *germ* hypothesis: one remedy for one ailment (Pasteur). On the contrary side, Eastern medication is situated specifically on old knowledge of *restoring* the parity

(harmonious functions) of the body, at the end of the day: to blend our body and our live with nature. In spite of the fact that those two methodologies in medication and social insurance have caused such a large number of contentions and false impressions, really it is conceivable to do an exchange between them. From Neutrosophic Logic's point of view, a goal to the above clashing ideal models can be found in creating novel methodologies which acknowledge the two conventions in medication, or it is conceivable to call such a methodology: "*curemony*," for example by simultaneously relieving an infection and reestablishing harmony and returning concordance in one's body-mind-soul all in all.

Now it is known that one of the objections by Western scholars about the Eastern medicine (based on meridian points) is the unobservability of meridian vascular/duct system. This makes meridian system neglected in almost all textbooks taught in Western medicine schools. Therefore, here a new viewpoint is submitted, i.e. Bong Han *duct* system (PVS), which is *a proof of Meridian system*, can be a bridge between those two medicine paradigms in neutrosophic sense. This can be considered as a Neutrosophic Logic way to bridge or reconcile the age old debates over the Western and Eastern approach to medicine.

It would be a lot easier to merge both the eastern (ancient) and the modern western curative system in terms of neutrosophy. These neutrosophic intermediates will help further to boost dialogues between those Western and Easternsystem and their useful information. This neutrosophic intermediator is actually dealing with conscious of both nonmatter and matter in terms of ancients and modern techniques.

2. Introduction to Bong Han duct system

Nonetheless, in literature it is recorded that Bong Han Kim is a Professor in Biology in Korea. Around 1950-1960 he found the

vessel which is a "*duct*" to known Eastern Meridian system, which is already known in acupuncture medicine system. Therefore it seems like a bridge between Western and Eastern medicine paradigms. As it is mentioned in previous paper [1], this paper will discuss how those paradigms can be reconciled in Neutrosophic Logic, using a degree of Western medicine and a degree of Eastern medicine, as the neutral part of neutrosophy. To us, Bong Han duct system is a good way to start a healthy and meaningful dialogue between those two paradigms in medicine.

As Vitaly Vodanoy wrote, which can be rephrased as follows:

> "In the 1960's Bong Han Kim found and described another vascular framework. He had the option to separate it unmistakably from vascular blood and lymph frameworks by the utilization of an assortment of techniques, which were accessible to him in the mid-twentieth century. He gave nitty gritty portrayal of the framework and made thorough graphs and photos in his distributions. He showed that this framework is made out of hubs and vessels, and it was answerable for tissue recovery. In any case, he didn't reveal in subtleties his techniques. Thus, his outcomes are moderately dark from the vantage purpose of contemporary researchers. The stains that Kim utilized had been idealized and being used for over 100 years. In this manner, the names of the stains coordinated to the unequivocal conventions for the use with the specific cells or particles. Generally, it was not typically important to portray the strategy utilized except if it is altogether strayed from the first technique."[9]

Although his method was almost forgotten until recently, it has been recovered again in the past decade. It is clear therefore, that Bonghan Kim's work, who essentially (and without being aware of the work previously done by Bechamp) discovered that what we call the 'Meridian System' (known as the *Kyungrak* System in the Korean tongue) which exists in the body as an actual third anatomical vascular system, comprised of ducts, ductules, corpuscles, and a unique type of fluid, the contents of which tie directly back to Bechamp's own

discoveries (work is still being done today on the mapping out of this anatomical system, as it is far more extensive than the old Oriental texts gave it credit.) See [4].

Remark on terminology:

> "In a matter of seconds before the primary International Symposium on Primo Vascular System, which was held in Jecheon, Korea during September 17–18, 2010, Dr. Kwang-Sup Soh, recommended that it is critical to concur upon a solitary phrasing for the Bonghan framework. It was concurred that following terms would be embraced: Bong-Han System (BHS) - Primo Vascular System (PVS); Bonghan Duct (BHD)- Primo Vessel (PV); Bonghan Corpuscle (BHC)- Primo Node (PN); Bonghan Ductule - P-Subvessel; Bonghan Liquor-Primo Fluid (P-liquid); Sanalp-Microcell"[9].

Now in the next section, it will be discussed virus research, especially at their beginning.

Hidden the introduction of virology is a conviction that infections are monomorphism, they are fixed species, unchangeable; that each neurotic kind produces (typically) just a single explicit illness; that microforms never emerge endogenously, i.e., have supreme source with the host. Thus the worldview prompts conviction called "germ hypothesis" of Pasteur: for example one remedy for one disease.[6-7]

Bechamp recorded standard as the premise of another hypothesis about "infections." Briefly, this guideline holds that in every single living life form are organically indestructible anatomical components, which he called microzymas. They are freely living sorted out matures, equipped for creating compounds and fit for advancement into increasingly complex microforms, for example, microbes. Bechamp's proposition is that infection is a state of one's interior condition (landscape); that ailment (and its indications) are "conceived of us and in us"; and that malady isn't created by an assault of microentities yet considers forward their endogenous cause. [8]

All things considered, it is realized that Pasteur duplicated whatever he discovered Bechamp thoughts would fit in his own hypothesis. Consequently, Bechamp was unmistakably increasingly unique researcher contrasted with Pasteur.

3. A re-interpretation of diseases and virus from Bechamp's theory

This section begin by citing [4], which can be paraphrased as follows:

"Through a cautious perception of the wonders of the thickening of the blood just as the procedure of maturation; and as a methods for all the more accurately deciphering the basic idea of these marvels; Bechamp straightforwardly saw that there exist a layers of subcellular, miniaturized scale natural living structures known as 'microzymas', a word which when interpreted signifies 'minor ages'. These structures were alluded to without anyone else and by other people (who came later, and mentioned a similar objective facts) as some type of 'atomic granulations' (more on this beneath). These microzyma are littler in size than some other known types of small scale natural life, and fill in as the base establishment for the development of every other type of such life."

Moreover, on a more recent setting, see Andrew Kaufmann's report on WHO's early investigation of the corona virus, before it was declared globally as an epidemic.[8]

According to Dr. Andrew Kaufman's report, a "virus" as observed is actually an *exosome*. That is not impossible. Even if you want to be more assertive. It's not just the PCR test that is inaccurate. So the so-called virus is indeed questionable. Because it relates to the *germ theory* of Pasteur, meaning each disease will need one type of medicine [1][2].

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8   Dr. Andrew Kaufman's interview on corona virus test. url: https://www.youtube.com/watch?v=f9mzdvOEjBc

That's not right. Pasteur's theory draws a lot from the real expert at the time: Bechamp.[4]

In essence, according to Bechamp, the source of the disease is most likely to be endogenous. Meaning from within the body when adjusting itself to the environment.

What is interesting to ask here is what kind of the changes in the environment that triggers the emergence of symptoms such as excessive thirs? Actually, it is known as one of the symptoms known for electromagnetic radiation. Therefore, it is no surprise that there are some allegations by experts: severe radiation disturbances arise in Wuhan and Italy and also the USA because of they are the locations where the massive 5G network has begun to beinstalled (see also Firstenberg's report [5]).

But this short paper is not intended to discuss more detailed about relation between 5G and covid-19, so this problem will be left to others to take up this matter and investigate further.

4. Concluding remarks

This paper continued our previous article, where possible approach of "curemony" is discussed as a middle Neutrosophic way in order to reconcile Eastern and Western's paradigms of medicine [1]. Although it is known in literature, that there are some attempts to reconcile between Eastern and Western medicine paradigms, known as "integrative medicine," here it is submitted a viewpoint that Bong Han duct system (PVS) which is a proof of meridian system, can be a neutrosophic bridge between those two medicine paradigms.

Here a new viewpoint is submitted, i.e. Bong Han duct system (PVS), which is a proof of Meridian system, can be a bridge between those two medicine paradigms in neutrosophic sense. This can be considered as a Neutrosophic Logic way to bridge or reconcile the age old debates over the Western and Eastern approach to medicine.

It would be a lot easier to merge both the eastern (ancient) and the modern western curative system in terms of neutrosophy. These neutrosophic intermediates will help further to boost dialogues between those Western and Eastern system and their useful information. This neutrosophic intermediator is actually dealing with conscious of both nonmatter and matter in terms of ancients and modern techniques.

As mentioned in our previous paper [1], it is also discussed how those paradigms can be reconciled in Neutrosophic Logic. To us, Bong Han duct system (PVS) is a good way to start a healthy and meaningful dialogue between those two paradigms in medicine.

Acknowledgement

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SECTION 4
From Hilbert Problem
to Electron Models

Exploration

A Plausible Resolution to Hilbert's Failed Attempt to Unify Gravitation and Electromagnetism

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Abstract

In this paper, we explore the reasons why Hilbert's axiomatic program to unify gravitation theory and electromagnetism failed and outline a plausible resolution of this problem. The latter is based on Gödel's incompleteness theorem and Newton's aether stream model.

Keywords: Unification, gravitation, electromagnetism, Hilbert, resolution.

Introduction

Hilbert and Einstein were in race at 1915 to develop a new gravitation theory based on covariance principle [1]. While

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Einstein seemed to win the race at the time, Hilbert produced two communications which show that he was ahead of Einstein in term of unification of gravitation theory and electromagnetic theory. Hilbert started with Mie's electromagnetic theory. However, as Mie theory became completely failed, so was the Hilbert's *axiomatic* program to unify those two theories [1]. Einstein might be learning from such an early failure of Hilbert to unify those theories, and years later returned to Mie theory [1].

What we would say here is that Hilbert's axiomatic failure can be explained by virtue of Gödel's incompleteness theorem: which says essentially that any attempt to build a consistent theory based on axiomatic foundations can be shown to be inconsistent. Nonetheless only few physicists seem to grasp this result.

What can we learn from that story?

First of all, it leads us back to Newton's aether stream model as will be discussed in the following sections. Moreover, it may be not only that it is an elusive dream to unify gravitation and electromagnetic theories from pure thoughts, but it clearly shows that we ought to return to the old days of Maxwell and also Heaviside who have given hints on how to come up with a more realistic unification of gravitation and electromagnetic theories.

To us, it also shows that we may need to re-read Maxwell's original papers, perhaps we should find out how he thought about cogwheel, molecular vortices etc…and they may lead us to a correct theory of gravitation (and also how to connect it with classical electrodynamics). In the meantime, it is worth noting here that Tesla and other experimenters have tried to come up with a simpler version of such unification theories, although most of them were not as familiar to many physicists unlike General Relativity theory.

Arthur Eddington's work

The modern era of cosmology began with the publication of Einstein's general theory of relativity in 1915. The first experimental test of this theory was Eddington's famous expedition to measure the bending of light at a total solar eclipse in 1919 [3].
According to Peter Coles's book [3]:

> Eddington was impressed by the beauty of Einstein's work, and immediately began to promote it. In a report to the Royal Astronomical Society in early 1917, he particularly stressed the importance of testing the theory using measurements of light bending. A few weeks later, the Astronomer Royal, Sir Frank Watson Dyson, realised that the eclipse of 29 May 1919 was especially propitious for this task. Although the path of totality ran across the Atlantic ocean from Brazil to West Africa, the position of the Sun at the time would be right in front of a prominent grouping of stars known as the Hyades. When totality occurred, the sky behind the Sun would be glittering with bright stars whose positions could be measured. Dyson began immediately to investigate possible observing sites. It was decided to send not one, but two expeditions. One, led by Eddington, was to travel to the island of Principe off the coast of Spanish Guinea in West Africa, and the other, led by Andrew Crommelin (an astronomer at the Royal Greenwich Observatory), would travel to Sobral in northern Brazil. An application was made to the Government Grant Committee to fund the expeditions, £100 for instruments and £1000 for travel and other costs. Preparations began, but immediately ran into problems. Although Britain and Germany had been at war since 1914, conscription into the armed forces was not introduced in England until 1917. At the age of 34, Eddington was eligible for the draft, but as a Quaker he let it be known that he would refuse to serve. …

> There were other problems too. The light deflection expected was quite small: less than two seconds of arc. But other things could cause a shifting of the stars' position on a photographic plate. For one thing, photographic plates can expand and contract with changes in temperature. The emulsion used might not be particularly uniform. The eclipse plates might have been exposed under different conditions from the reference plates, and so on. The

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Sobral team in particular realised that, having risen during the morning, the temperature fell noticeably during totality, with the probable result that the photographic plates would shrink. The refractive properties of the atmosphere also change during an eclipse, leading to a false distortion of the images. And perhaps most critically of all, Eddington's expedition was hampered by bad luck even after the eclipse. Because of an imminent strike of the local steamship operators, his team was in danger of being completely stranded. He was therefore forced to leave early, before taking any reference plates of the same region of the sky with the same equipment. Instead he relied on one check plate made at Principe and others taken previously at Oxford. These were better than nothing, but made it impossible to check fully for systematic errors and laid his results open to considerable criticism. All these problems had to be allowed for, and corrected if possible in the final stage of data analysis. Scientific observations are always subject to errors and uncertainty of this kind. The level of this uncertainty in any experimental result is usually communicated in the technical literature by giving not just one number as the answer, but attaching to it another number called the 'standard error', an estimate of the range of possible errors that could influence the result. If the light deflection measured was, say, 1 arc second, then this measurement would be totally unreliable if the standard error were as large as the measurement itself, 1 arc second. Such a resultwould bepresented as '1±1' arc second, and nobodywould believe it because the measured deflection could well be produced entirely by instrumental errors. In fact, as a rule of thumb, physicists never usually believe anything unless the measured number is larger than two standard errors. The expedition teams analysed their data, with Eddington playing the leading role, cross-checked with the reference plates, checked and doublechecked their standard errors. Finally, they were ready. …

A special joint meeting of the Royal Astronomical Society and the Royal Society of London was convened on 6 November 1919. Dyson presented the main results, and was followed by contributions from Crommelin and Eddington. The results from Sobral, with measurements of seven stars in good visibility, gave the deflection as 1.98±0.16 arc seconds. Principe was less convincing. Only five stars were included, and the conditions there led to a much larger error. Nevertheless, the value obtained by Eddington was

1.61±0.40. Both were within two standard errors of the Einstein value of 1.74 and more than two standard errors away from either zero or the Newtonian value of 0.87. The reaction from scientists at this special meeting was ambivalent. Some questioned the reliability of statistical evidence from such a small number of stars. This skepticism seems in retrospect to be entirely justified. Although the results from Sobral were consistent with Einstein's prediction, Eddington had been careful to remove from the analysis all measurements taken with the main equipment, the astrographic telescope and used only the results from the 4-inch. As I have explained, there were good grounds for this because of problems with the focus of the larger instrument. On the other hand, these plates yielded a value for the deflection of 0.93 seconds of arc, very close to the Newtonian prediction. Some suspected Eddington of cooking the books by leaving these measurements out.

Gödel's incompleteness theorem

Gödel's ground-breaking results were obtained against the backdrop of the foundational debate of the 1920s. In 1921, reacting in part to calls for a "revolution" in mathematics by the intuitionist L. E. J. Brouwer and his own student Hermann Weyl, Hilbert had proposed a program for a new foundation of mathematics. The program called for (i) a formalization of all of mathematics in an axiomatic systems followed by (ii) a demonstration that this formalization is consistent, i.e., that no contradiction can be derived from the axioms of mathematics. Partial progress had been made by Wilhelm Ackermann and John von Neumann, and Hilbert in 1928 claimed that consistency proofs had been established for first-order number theory. Gödel's results would later show that this assessment was too optimistic; but he had himself set out to with the aim of contributing to this program.[5]

According to Devlin's book [4]:

Gödel's Theorem says that in any axiomatic mathematical system that is sufficiently rich to do elementary arithmetic, there will be some statements that are true but cannot be proved (from the axioms). In technical terminology, the

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axiom system must be incomplete. At the time Gödel proved this theorem, it was widely believed that, with sufficient effort, mathematicians would eventually be able to formulate axioms to support all of mathematics. The Incompleteness Theorem flew in the face of this expectation, and many took it to imply that there is a limit to the mathematical knowledge we may acquire. Few mathematicians think that way now, however. The change in our conception of mathematical truth that Godel's theorem brought about was so complete, that today most of us view the result itself as merely a technical observation about the limitations of axiom systems.

To summarize: "Kurt Gödel's Incompleteness Theorem changed the concept of mathematical truth and showed the limitations of axiom-based systems." In other words, Godel effectively put Hilbert's axiomatic program into ruins. And so was Hilber's approach to unify gravitation and electromagnetic theory.

Now the hard question: is it possible to find a door outside such a Godel's spider web?

A plausible resolution of the above problems

a. Why do we need a new approach?

Karl Popper's epistemology suggests that when the theory is refuted by observation, then it is time to look for a set of new approaches. Now, it is clear that Hilbert's axiomatic program has failed not only by experiment (Mie theory does not agree with experiment) but also in terms of logic (Godel theorem). Therefore we set out a new approach, starting from an old theory of Isaac Newton.

b. Recalling Newton's aether stream model

Newton brought up his aether stream model in a letter to Robert Boyle, 1678. For interested readers, complete letter of Isaac Newton to Boyle can be found in Appendix section. Comments on Newton aether stream model by DeMeo go as follows:

The letter clearly shows the young Newton, who wrote this in 1679 when he was 37 years old, had a firm belief and working grasp of the ether of space

as a thing of substance and "ponderability", something which participated in the movement and ordering of the planets and universe, as a working force in optics, chemistry and gravitation. In this, Newton was continuing the conceptual ideas of Galileo, which had been such an irritant to the Vatican Bishops, who would tolerate no possibility of a motional force in nature other than God. The idea that ether and god might be identical descriptions for the "prime-mover" was equally intolerable, as while one could scientifically know and measure the ether, one could not by definition measure or know "the divine". The young Newton was not bothered by such conceptual difficulties as which bothered the Bishops of Rome, however, but the older Newton increasingly became preoccupied with theological matters, to the point that nearly all his biographers would agree he had become as much of a theologian as scientist in his last decades. Even only 20 years after penning this Letter to Boyle, he writes in the last query of his *Optics*, the following:

> "Now by the help of these principles, all material things seem to have been composed of the hard and solid particles, above-mentioned, variously associated in the first creation by the counsel of an intelligent agent. For it became him who created them to set them in order. And if he did so, it's unphilosophical to seek for any other origin of the world, or to pretend that it might arise out of a chaos by the mere laws of nature; though being once formed, it may continue by those laws for many ages..." (quoted in Sullivan, p.125-126)

During those later periods, Newton would drop ideas such as a ponderable and moving cosmic ether in favor of more abstract concepts, such as the divine "prime mover" or deified "absolute space", which was foundational for most later astrophysical investigations into the nature of the cosmos. The most obvious result of this shift was, that in the original Michelson-Morley experiment for testing of ether-drift, everyone anticipated a very large ether-drift effect, based upon the assumption the Earth was racing through an intangible and substance-less static and immobile cosmic ether at very high speeds. No such intangible static ether has ever been demonstrated, nor could it be. But a material and substantive entrained ether, moving more slowly at lower altitudes and close to the speed of the earth itself, something

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quite similar to that proposed by the young Isaac Newton, was detected repeatedly.."[6]

c. *Remark on Aether stream (by third author)*

The higher the energy, the higher the velocity of the aether entities in the given place and time, and the lower the density. The phase states can exhibit turbulence, which is more marked at the higher densities, the way I am looking at this right now. The Kolmogorov Limit of 10e -58 meters plays a part here. Entities smaller than that will not exhibit much turbulence, primarily because they tend to be superluminal, so any turbulence will be hard to see.

The following figure is on Mishin's Aether phase states:
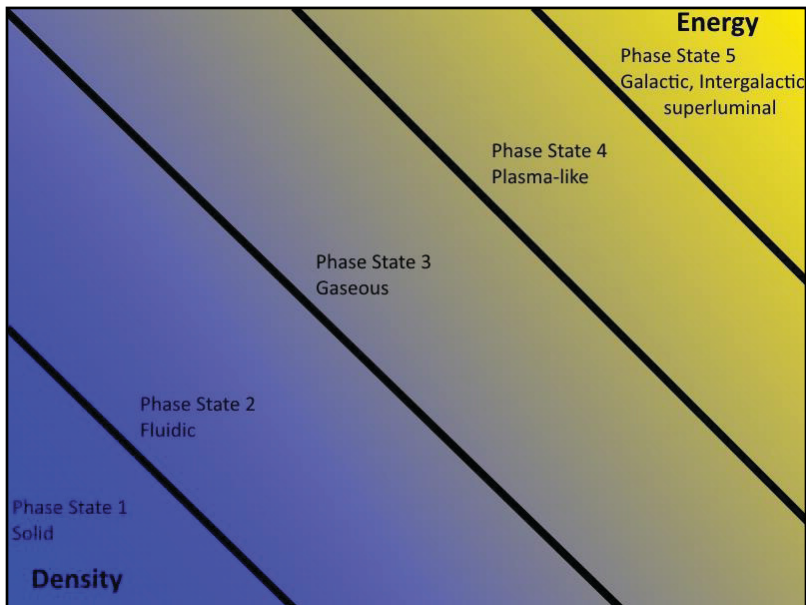
Figure 1. Aether phase states (Mishin)

There is an illustration of the process of aether particles being slowed by existing matter and eventually forming electron vortices as the local aether density and turbulence increases, while the energy

drops due to interactions with existing matter, or aether in a denser phase state.
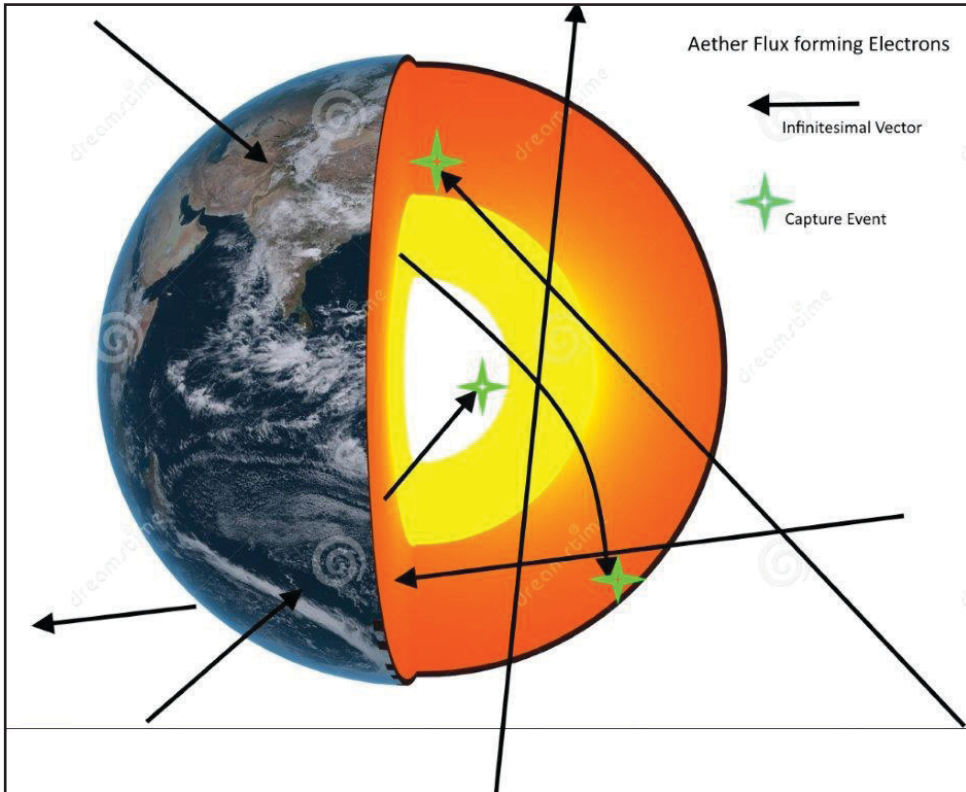
Figure 2. Illustration on how matter creation can take place in inner core of Earth (Source: https://www.dreamstime.com/royalty-free-stock-photography-earth-core-image1890727)

The process of matter creation can be attributed to electron vortex capture event.

This illustration shows stellar and interstellar aether flows interacting with electron vortices. In some cases the stellar flux is diverted by the electron vortex. In other cases, the flux entity misses entirely, similar to a neutrino. In some unusual cases the flux is captured by an electron vortex and participates in it for a while.

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Each electron which already exists, acts as a large rock in a moving stream, causing deflections of the normal aether flow, slowing down the flow-rate, and producing eddy currents and turbulence in the ambient aether near the given electron. When the turbulence becomes large enough, additional electrons form in the media, which act to choke off the interstellar aether flow even more and impede its normally unencumbered motion. This is similar to adding more and more rocks into the channel of a stream of water, so that the flow rate of the water slows down, as more and more rocks are added.

This process was discovered by Nikola Tesla during his experiments at his Colorado Springs laboratory, where my grandfather was employed by Tesla, during those days. It is a good thing this happens, or aether avalanches produced by Tesla's 100,000,000 volt explosive electrical discharge events could have burned away the very air we live in.

Tesla was relieved to find out the discharges were choked off, accompanied by vast numbers of newly created electrons. Tesla found the excess electricity resulting from the excess electrons to be a nuisance to his other experiments, so he dumped the excess electrical power into the earth's crust.

Helmholtz electron vortices can be destroyed by aether shock fronts resulting from high dv/dt electrical discharges which are approaching the ideal of a Dirac delta function. In that situation, the Helmholtz vortex is disintegrated. The aether which originally formed the particle vortex, becomes part of the shock front and is carried along with the aether shock wave at velocities similar to the shock front, until the shock front dissipates. At that point, all that remains is a propagating aether stream, diverging at the rate of 1/r, relative to the source.

Everything is made of aether infinitesimals. Their group streaming motions precede the known forces, in the form of vector potentials. All matter is made from accumulations of infinitesimals.

And all matter can be dissipated back into its constituent infinitesimals. See also figure below:
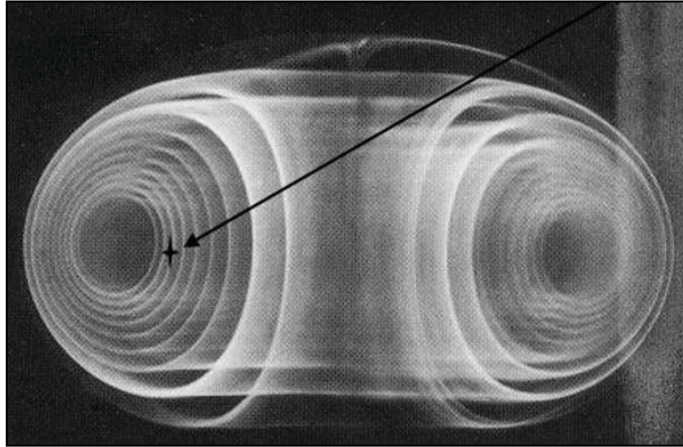
Figure 3. electron vortex capture event – Helmholtz electron vortex is nearly indestructible (after R.N. Boyd)
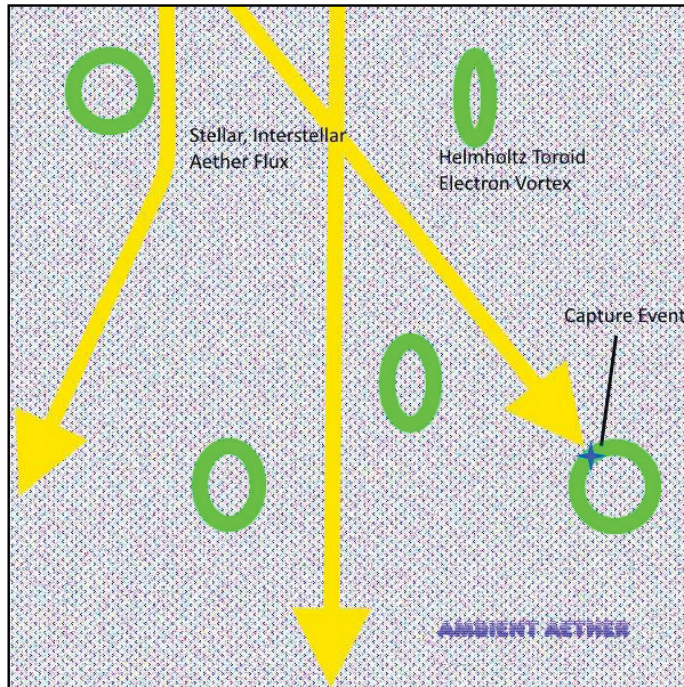
Figure 3a. electron vortex capture event(after R.N. Boyd)

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The Helmholtz vortex model of the electron as illustrated in the photo of a Helmholtz vortex

(Fig. 3), is a toroid made of nested concentric toroidal flows of smaller particles. Lines of constant flow are given by

r = **a** sin 'Ω = **a** sin 'Ωt,

where a is a constant. The velocity components are

dr/dt = **a** 'Ω cosine 'Ω t

and

r dθ/dt = **a** 'Ω sin 'Ω t

The 'Ωt implies that a characteristic wave function is associated with the vortex, but we haven't worked on it yet. This may be an indication of origin of the de Broglie wave of the electron, or it may have something to do with the Compton radius of the electron, or both.

The constant **a** may represent the outer limit of the vortex-particle, if the internal circulation velocity of smaller particles does not exceed light speed. If the circulation velocity is larger than c, at the outer shells of the nested vortex, there may be a species of sub-particles which is always being removed from the nested toroidal form, which must be replenished to the vortex which is living in an "atmosphere" made larger circulations of sub-particles. This is due to considering the electron as having a fixed mass, a fixed extent, and a fixed charge (which may not be the case for all time and in all circumstances).

There should be some set of equations which shows vortex sub-particle replacement activities from the ambient aether, but we haven't worked on it either.

The first equation is a circle tangent to the z axis at the origin, with a center located in the X Y plane at the distance

$$\mathbf{a}/2 = p$$

where p is the potential of the electron, and is independent of the orientation of the electron vortex.

Then the electron can be viewed as a toroid, with a volume

$$V = 2 \pi r \text{ times } \pi r^2 = 2 \pi^2 r^3$$

Three potentials are indicated here: Static potential, Spin potential, and a Dipole potential. Since the electron vortex has mass (which may change from its present value, according to the parameters of the ambient aether in the vicinity of the electron at the given place and time), a total of six potentials are implied.

d. *Introducing acoustic model of space*

With regards to spacetime metric which is conventionally attributed to Special Relativity, Thornhill has argued in favour of *acoustic nature of space* which conforms *reality*, instead of relativity with its notorious denial view on the existence of Aether stream. The following argument is derived from Thornhill.

In one of his remarkable papers, the late C.K. Thornhill wrote as follows:

"Relativists and cosmologists regularly refer to space-time without specifying precisely what they mean by this term. Here the two different forms of spacetime, real and imaginary, are introduced and contrasted. It is shown that, in real spacetime (x, y, z, ct), Maxwell's equations have the same wave surfaces as those for sound waves in any uniform fluid at rest, and thus that Maxwell's equations are not general and invariant but, like the standard wave equation, only hold in one unique frame of reference. In other words, Maxwell's equations only apply to electromagnetic waves in a uniform ether at rest. But both Maxwell's equations and the standard wave equation, and their identical wave surfaces, transform quite properly, by Galilean transformation, into a general invariant form which applies to waves in any uniform medium moving at any constant velocity relative to the reference-frame. It

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was the mistaken idea, that Maxwell's equations and the standard wave equation should be invariant, which led, by a mathematical freak, to the Lorentz transform (which demands the non-ether concept and a universally constant wave-speed) and to special relativity. The mistake was further compounded by misinterpreting the differential equation for the wave hypercone through any point as the quadratic differential form of a Riemannian metric in imaginary space-time (x, y, z, ict). Further complications ensued when this imaginary space-time was generalised to encompass gravitation in general relativity."(9)

Acoustic Analogue of Space

In this section, we borrow some important ideas from C.K. Thornhill and also Tsutomu Kambe. According to Thornhill, real space-time is a four dimensional space consisting of threedimensional space plus a fourth length dimension obtained by multiplying time by a constant speed. (This is usually taken as the constant wave-speed c of electromagnetic waves). If the four lengths, which define a four-dimensional metric (x, y, z, ict), are thought of as measured in directions mutually at right-angles, then the quadratic differential form of this metric is: [9]

$$(ds)^2 = (dx)^2 + (dy)^2 + (dz)^2 - c^{-2} (dt)^2 \tag{1}$$

When the non-differential terms are removed from Maxwell's equations, i.e. when there is no charge distribution or current density, it can easily be shown that the components (E_1, E_2, E_3) of the electrical field-strength and the components (H_1, H_2, H_3) of the magnetic field-strength all satisfy the standard wave equation: [9]

$$\nabla \phi = \left(\frac{1}{c^2} \right) \frac{\partial^2 \phi}{\partial t^2}$$

$$\tag{2}$$

It follows immediately, therefore, that the wave surfaces of Maxwell's equations are exactly the same as those for sound waves in any uniform fluid at rest, and that Maxwell's equations can only hold in one unique reference-frame and should not remain invariant when transformed into any other reference-frame. In particular, the equation for the envelope of all wave surfaces which pass through any point at any time is, for equation (2), and therefore also for Maxwell's equations [9],

$$(dx)^2 + (dy)^2 + (dz)^2 = \bar{c}^2 (dt)^2 , \tag{3}$$

or

$$\frac{(dx)^2}{(dt)^2} + \frac{(dy)^2}{(dt)^2} + \frac{(dz)^2}{(dt)^2} = \bar{c}^2 \tag{4}$$

It is by no means trivial, but it is, nevertheless, not very difficult to show, by elementary standard methods, that the general integral of the differential equation (4), which passes through (x1, y1, z1) at time t1, is the right spherical hypercone [9]

$$(x - x_1)^2 + (y - y)^2 + (z - z_1)^2 = \bar{c}^2 (t - t_1)^2 \tag{5}$$

In other words, *both Maxwell equations and space itself has the sound wave origin.*

It is also interesting to remark here that Maxwell equations can be cast in the language of vortex sound theory, as follows. Prof. T. Kambe from University of Tokyo has made a connection between the equation of vortex sound and fluid Maxwell equations. He wrote that it would be no exaggeration to say that any vortex motion excites acoustic waves. He considers the equation of vortex sound of the form: [10]

$$\frac{1}{c^2} \partial_t^2 p - \nabla^2 p = \rho_) \nabla . L = \rho_) div(\omega \times v) \tag{6}$$

He also wrote that dipolar emission by the vortex-body interaction is [11]:

$$p_F(x,t) = -\frac{P_0}{4\pi c}\dot{\Pi}_i(t - \frac{x}{c})\frac{x_c}{x^2}$$

(7)

Then he obtained an expression of fluid Maxwell equations as follows [12]:

$$\nabla \cdot H = 0$$
$$\nabla \cdot E = q$$
$$\nabla \times E + \partial_t H = 0$$
$$a_0^2 \nabla \times H - \partial_t E = J$$

(8)

Where [12] a_0 denotes the sound speed, and

$$q = -\partial_t(\nabla \cdot \upsilon) - \nabla \hbar,$$
$$J = \partial_t^2 v + \nabla \partial_t h + a_o^2 \nabla \times (\nabla \times \upsilon)$$

(9)

In our opinion, this new expression of fluid Maxwell equations suggests that there is a deep connection between vortex sound and electromagnetic fields. However, it should be noted that the above expressions based on fluid dynamics need to be verified with experiments. We should note also that in (8) and (9), the speed of sound a0 is analogous of the speed of light in Maxwell equations, whereas in equation (6), the speed of sound is designated "c" (as analogous to the light speed in EM wave equation). For alternative hydrodynamics expression of electromagnetic fields, see [14-15].

e. *More proof: Calculating matter creation in Earth and its effect*

One of us has performed a calculation to show that the observed receding Moon from Earth, should be properly attributed to increasing size of the Earth. The latter phenomenon could be attributed to "matter creation" as effect of aether stream (vortex). We will discuss this in a separate report.

f. More proof: Dayton Miller's experiment

DeMeo remark on Dayton Miller's experiment:

> The history of science records the 1887 ether-drift experiment of Albert Michelson and Edward Morley as a pivotal turning point, where the energetic *ether of space* was discarded by mainstream physics. Thereafter, the postulate of "empty space" was embraced, along with related concepts which demanded constancy in light-speed, such as Albert Einstein's relativity theory. The now famous *Michelson-Morley experiment* is widely cited, in nearly every physics textbook, for its claimed "null" or "negative" results. Less known, however, is the far more significant and detailed work of Dayton Miller.
>
> Dayton Miller's 1933 paper in *Reviews of Modern Physics* details the positive results from over 20 years of experimental research into the question of ether-drift, and remains *the most definitive body of work on the subject of light-beam interferometry.* Other positive ether-detection experiments have been undertaken, such as the work of Sagnac (1913) and Michelson and Gale (1925), documenting the existence in light-speed variations (c+v > c-v), but these were not adequately constructed for detection of a larger cosmological ether-drift, of the Earth and Solar System moving through the background of space. Dayton Miller's work on *ether-drift* was so constructed, however, and yielded *consistently positive results.*

Miller's work, which ran from 1906 through the mid-1930s, most strongly supports the idea of an ether-drift, of the Earth moving through a cosmological medium, with calculations made of the actual direction and magnitude of drift. By 1933, Miller concluded that the Earth was drifting at a speed of 208 km/sec. towards an apex in the Southern Celestial Hemisphere, towards Dorado, the swordfish, right ascension 4 hrs 54 min., declination of -70° 33', in the middle of the Great Magellanic Cloud and 7° from the southern pole of the ecliptic. (Miller 1933, p.234)"[8]
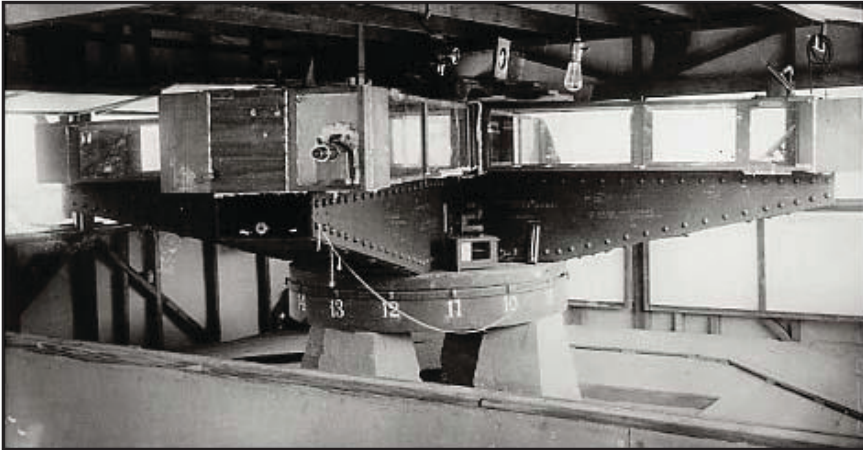
Figure 4. Dayton Miller's light-beam interferometer, at 4.3 meters across, was the largest and most sensitive of this type of apparatus ever constructed, with a mirror-reflected round-triplight-beam path of 64 meters. It was used in a definitive set of ether-drift experiments on Mt. Wilson, 1925-1926. Protective insulation is removed in this photograph, and windows were present all around the shelter at the level of the interferometer light-path. [8]

That Dayton Miller's experiment seems quite consistent with other experiments such as Michelson-Morley non-null result, which indicates solar system in motion. [21-22].

g. *More proof: preferred direction and Milky Way moving to The Great Attractor*

Another type of observations seems to suggest that there is preferred direction in the Universe at large scale, and especially that the Milky Way is moving at large speed toward the Great Attractor. [18-20] While this effect may be not detected in the Miller's days, two things are for sure: (a) no general relativity based theories can explain this effect, and (b) it makes Copernican Principle on question. This effect is seemingly consistent with Tifft's finding of rest background frame.[17]
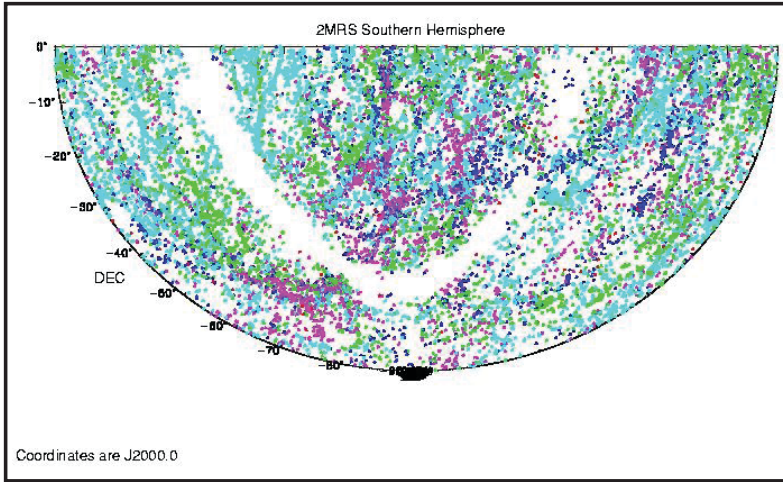
Figure 5. The Great Attractor from Southern Hemisphere
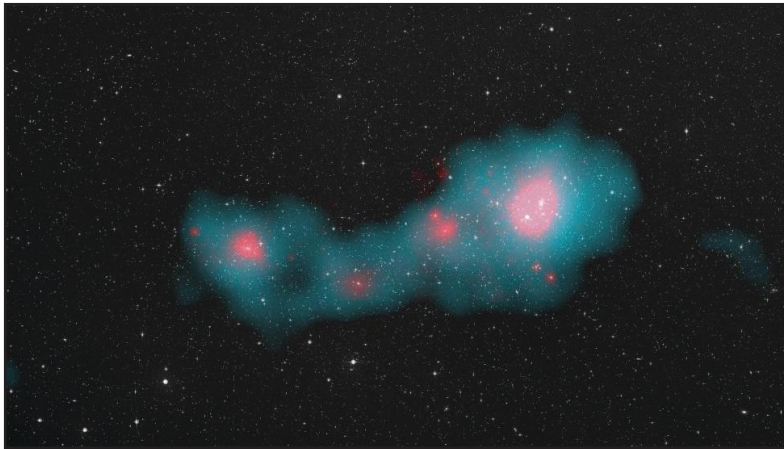
Figure 6. Shapley Supercluster
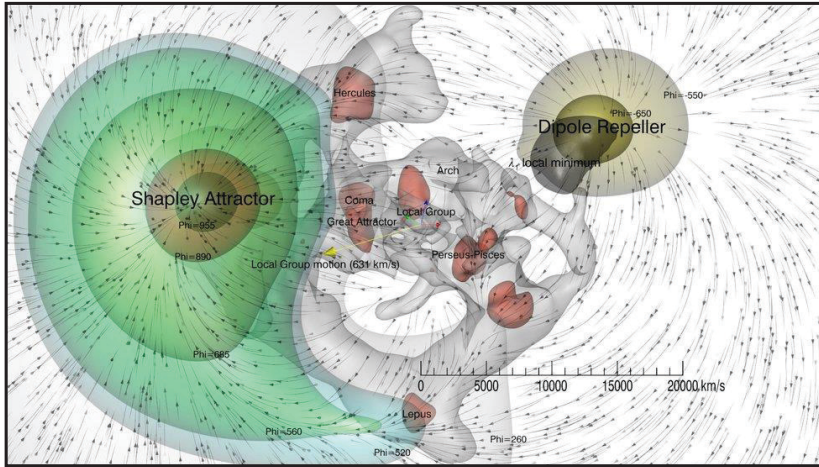
Figure 7. Shapley Supercluster

Conclusions

We begin with Hilbert's axiomatic program to unify electromagnetic and gravitation theory, and we remark that Godel finding effectively put Hilbert program into ruins. We also mentioned Eddington's observation.

In summary, it is very significant to consider matter creation process in nature. For instance, one can begin by considering the correct presentation of Newton's third law is not F=ma, but F=d(mv)/dt=v(dm/dt) + m(dv/dt). In other words, it is possible of matter creation (dm/dt), and this is consistent with Narlikar's work. This seems to be the essence of Le Sage gravity theory.

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Exploration

Electron Model Based on Helmholtz's Electron Vortex Theory and Kolmogorov's Theory of Turbulence

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Abstract

In this paper, we explore a new electron model based on Helmholtz's electron vortex and Kolmogorov theory of turbulence. We also discuss a new model of origination of charge and matter.

Keywords: Electron model, Helmholtz, electron vortex, Kolmogorov, turbulence.

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Introduction

In a previous paper [1], we explored Hilbert's axiomatic program to unify electromagnetic and gravitation theory, and we remarked that Godel's finding effectively put Hilbert program into ruins. Summarizing, it is very significant to consider *matter creation* process in nature. For instance, one can begin by considering the correct presentation of Newton's second law is not F=ma, but F=d(mv)/dt=v(dm/dt) + m(dv/dt). In other words, it is possible of matter creation (dm/dt), and this seems quite consistent with *Narlikar's work.*

There are various models of electron which have been suggested, for instance see Chekh et. al. [10]. We seek a more realistic electron model which is able to describe to experiments conducted by Winston Bostick *et. al.* [9]. In our attempt to explain such experiments of electron creation in plasma, allow us to come up with a new model of electron, based on *Helmholtz's electron vortex theory.* In turn, we will discuss a plausible model of electron capture event inside Earth (matter creation), which may serve a basis to explain Le Sage/Laplace's push gravity.

The Helmholtz vortex model of the electron is a toroid made of nested concentric toroidal flows of smaller particles, perhaps the inertons of Krasnoholovets, or aggregate particles made from Bhutatmas.

The most salient part of the Kelvin-Helmholtz electron vortex form ("KH vortex"), at its outermost margins, is almost **spherical,** as well as toroidal, as can be seen from the diagrams and the photograph of KH vortices. Thus, due to laminar flows intersecting with existing spheres, vortex streets are caused to form into **KH** vortex <u>rings</u>, which are rotating in alternating opposite directions. Electrons and positrons also have equal and opposite "charge" and are considered to be "anti-matter" in relation to one another.

But at this point, readers may ask: what is "anti-matter" really, other than opposite directions of rotation of similar particles? And what is "charge" really, in terms of aether behaviors?

So, essentially, electron-positron pair formation is properly described and justified for the first time in the history of particle physics, as both electrons and positrons are KH vortices, rotating in opposite directions. Electron-positron pairs are, at least temporarily, linked by bridges of the same material particles which the e-p particle pairs are being formed in.

Pairs of electrons and positrons are required to make the larger particles, such as the proton, which is an agglomeration of an exact number of electrons and positrons, with one positron excess, to account for the positive charge produced by the proton.

What needs to be discovered here is: What property of the aether determines the exact numbers of electron-positron pairs, required to form protons and neutrons? Does this have to do with "packing" limitations, imposed by the media? Is this to do with the phi ratio inherent in the media?

Each electron which already exists, acts as a large rock in a moving stream, causing deflections of the normal aether flow, slowing down the flow-rate, and producing eddy currents and turbulence in the ambient aether near the given electron. When the turbulence becomes large enough, additional electrons form in the media, which act to choke off the interstellar aether flow even more and impede its normally unencumbered motion. This is similar to adding more and more rocks into the channel of a stream of water, so that the flow rate of the water slows down, as moreand more rocks are added.

This process was discovered by Nikola Tesla during his experiments at his Colorado Springs laboratory. It is a good thing this happens, or aether avalanches produced by Tesla's 100,000,000 volt explosive electrical discharge events could have burned away the very air we live in.

Tesla was relieved to find out the discharges were choked off, accompanied by vast numbers of newly created electrons. Tesla found the excess electricity resulting from the excess electrons to be a nuisance to his other experiments, so he dumped the excess electrical power into the earth's crust.

Relation between Helmholtz's electron vortex model & turbulence theory

Solving the turbulence problem means finding (unknown) laws of the mixing of momentum and scalars, at asymptotically high Reynolds numbers. About hundred years ago, Osborne Reynolds and soon also Friedman & Keller thought that we can solve the problem by series expansions of the Navier-Stokes equations, a process which provides dynamic equations of motion for higher and higher (statistical) moments.

Unfortunately, such an expansion does not visibly converge. Certain closure assumptions are needed, such that this approach is not strict. With respect to theory, all subsequent research followed the paradigms of Reynolds, Friedman, and Keller, without any exact result.

The famous text by Landau & Lifshitz on fluid dynamics states that universal constants of turbulent motion, like von Karman's constant, can only be measured (rather than predicted by theoretical considerations).

Later, Kolmogorov realized the hopelessness of Reynolds-type paradigms and then he introduced an argument: *Similarity Analyses*, which immediately led to the scaling laws of turbulent spectra, e.g. the famous 5/3rd law, which is strict.

At an infinitely high Reynolds number, the physical properties of the specific fluid under study "vanish", due to vanishing viscosity. So the viscosity of the media at the given energy-density, isrelevant, in aether considerations.

This sort of turbulence is consequently described by the (regularized) Euler equation, which represents an "inert geometry". By this, the turbulence problem rests on the Euler equation and its singular solutions, such as "vortex atoms", as first introduced by Lord Kelvin almost 200 years ago, based on von Helmholtz's vortex theorems. Such solutions can be treated as non-trivial threedimensional particles, in motion.

In most cases these motions are extremely hard to predict are the focus of a special branch of mathematics – *topological hydrodynamics*. See also Kiehn [11-14].

There are two exceptions: Completely isolated vortices, and a "gas" of comprised of many vortices. The former case is trivial. In the latter case, one can do what has already been done by Maxwell in his kinetic theory of gases: Assume a chaotic (Brownian) motion of the entities involved. This paradigm, produces simple and comfortable equations of motion, of the advectiondiffusion- reaction type, for the key variables of turbulence, turbulent kinetic energy, and r.m.s. vorticity.

This approach allows a theoretical prediction of von Karman's constant as $1/\text{Sq Rt}(2\pi) = 0.399$ (The international standard value, based on measurements is 0.4).

This result is physically related to the Helmholtz vortex model of the electron. The correct aether turbulence model will produce electrons in the manner of a fluid flow producing turbulence.

The form of the Helmholtz vortex is circular at the surface, with toroidal shells made from the same smaller particles, circulating internally.

This allows the "substructure" requested by the "ring model." The ring model is constrained to behave according to Einstein's version of relativity, by extraneous artifices and excuses, all of which are wrong, from my point of view. There is nothing preventing any

faster than light behaviors, other than Einstein's version of relativity, which is completely non-physical, and only functions internal to one's imagination.
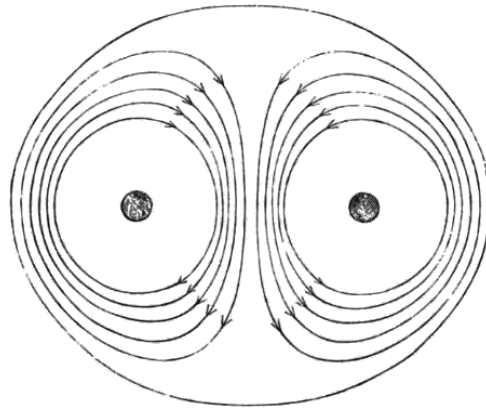
Figure 1. Helmholtz's atom model should be applied to electron vortex (after R.N. Boyd)

One of the hugest mistakes ever made in physics was Einstein's ill-advised attempts to constrain everything in existence to light speed, including time. This causes a conceptual wall to be erected in the mind, which prohibits superluminal behaviors of any kind, and makes interstellar travel and power without fuel, impossible, just because of a mathematical fantasy that cannot be proved as valid by any manner of physical experiment. There are vast numbers and types of experiments which refute every part and portion of the irrational arguments of Einstein's version of relativity.

It seems a good idea is to combine the "ring model" of the electron with the Helmholtz vortex model of the electron. The conclusions of the ring model which finds the Dirac and Schrodinger's equations invalid, are just a few of the mistakes in the development of the ring model that need to be corrected in the Helmholtz model which allows that *superluminal* behaviors of every kind may participate.

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On the plus side, they have done most of the other physics requirements work already. Once we provide the corrective measures which exclude relativistic considerations, we will have a very compelling model for the electron, which is based on nested flows of SubQuantum particles, which comprise a toroid when considered as a unit whole.

Natural extensions of Kolmogorov's studies of turbulence, towards the infinitely small, have directly derived turbulence-generated vortices as small as 10-58 m, which we call Kolmogorov vortices. These are the smallest creatures which are still influenced by gravitation. Smaller creatures are the primary cause of gravitation, in this model, which is related to both the LaPlace and LeSage models of gravitation. Both these models are valid, depending on how one is looking at the situation, so we are combining them into one model. We also have reproducible experimental evidence and instrumented spacecraft observations, which physically support this model.

Fabriciuss suggested that multiple Kolmogorov vortices might form a geometric inter-relationship which would then comprise an electron.

The "Bhutatma" infinitesimal particle of Vedic lore is the ultimate building block of everything, being the smallest unit of matter, and at the same time, the smallest unit of Consciousness.

Once the errors are removed from the ring model, and we hope that soon we will be able to illustrate electron formation from Kolmogorov turbulence in a perfect fluid, then our Helmholtz vortex model will be excellent. An outline of such a model of electron creation will be discussed at the following section.

Turbulence origination of Kelvin-Helmholtz electron vortex

For a non-viscous fluid, pressure exerts a force of -grad p per unit volume. (There is also a gravitational aether force, ρg per unit volume.) The aether fluid obeys Newton's law of motion, so $\rho dv/dt$ = -grad p,

as the equation of motion. (This is used to determine fluid pressure when the flow is known.)

A vorticity field is ω (x, y, z, t) in magnitude and direction, at any point. Lines drawn parallel to ω are called vortex lines, and their density can express the strength of the rotation, just as streamlines define the velocity field, and magnetic field lines define a magnetic field. (Such lines are not real, but greatly aid in visualization).

The line integral of the component of velocity, tangent to a closed curve, is called "circulation", and clearly measures the amount of rotation in the vortex. Let's take a small circle surrounding an area $A = \pi r2$ as the path of integration. If the angular velocity is ω, then the circulation will be $2\pi r$ x $\omega r = 2\pi\omega r2 = 2\omega a$. Thus, the circulation of the fluid, per unit area, is directly proportional to the angular velocity of rotation.

Stokes's Theorem states that the circulation of a vector about any curve C, is the surface integral of the curl (del cross) of the vector over the area enclosed by C. If this is applied to the present case, we find that curl v = 2ω, so that the rotation of the vortex is half the curl of the velocity. Since the divergence of the curl of a vector is identically zero, div ω = 0.

This means that if we consider a tube whose walls are parallel to ω, called a vortex tube, then this tube has the same "strength" (the product of the area and ω), at any point. This means that the vortex tube cannot end within the fluid, and must either close into a ring, or go to a boundary.

The Kelvin-Helmholtz theorem, states that the substantial derivative of the circulation about any curve C, in a fluid of zero viscosity, vanishes. This applies to any curve C on the walls of a vortex tube, or on any surface parallel to the vorticity, and implies that vortex lines are carried with the fluid, and that the "strength" at any point remains constant.

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If the initial state of a fluid to which the KH theorem applies, has no rotation, that is, curl v = 0 everywhere, the fluid will remain irrotational as it moves. This also means that if rotation exists in the vortex, it will persist for all time.

The stream function in a fluid or gas is analogous to the use of the vector potential of the magnetic fields of electric currents. From this, the foundational basis of electromagnetism is actually a description of fluidic flows in the aether.

Consider a vector field A = kA(x, y). (A(x, y) may also vary with the time, but we will consider that later.) Suppose that v is derived from A by the rule v = curl A. Writing this out: v = i(∂A/∂y)- j(∂A/∂x), so that vx = ∂A/∂y and vy = -∂A/∂x.

Now, writing out the continuity equation of div v = 0, it is automatically satisfied for any function A. To find the relationship between A and the vorticity, we write out the z-component of curl v, to find that 2ω = ∂vy/∂x - ∂vx/∂y -div grad A.

In considering two-dimensional motions, the vorticity of the aether fluid can only be parallel to the z-axis, since the velocity must lie in the x y-plane and is independent of z. (The vector potential of a magnetic field satisfies the same equation, where the current takes the place of fluidic vorticity.) The above, is Helmholtz's equation. The one scalar function A, thus allows us to find two interrelated components of the fluid velocity.

If the aether flow is irrotational, then A will satisfy Laplace's equation, and solve the problem as well as the velocity potential φ. In fact, A and φ are conjugate functions. In two dimensions, they are the real and imaginary parts of a complex analytic function. The streamlines A = constant, are orthogonal to the equipotentials φ = constant, again pointing to the direct relation between fluidic aether flows and the Maxwell equations.

Vortex lines have been postulated to study fluid dynamics. A vortex line has a finite strength (vorticity times area), but zero area, similar to the understanding that a dipole has zero length. The resulting vortex lines tend to propagate at infinite velocity, unless the lines remain absolutely straight. This would be the 5th aether *phase state in Mishin's 5-phase aetherdynamics*. Now we are beginning to discover the origin of the various types of turbulences in the ambient aether flows which eventually manifest as KH electron vortices. The aether flows around an already existing, but non-motional, electron vortex in a streaming aether fluid flow, sheds vortex pairs which are rotating in opposite directions, alternately from the two sides of the KH vortex, resulting in lines made of vortices, called a vortex "street" (also called a "von Kármán street"), behind it. These "streets" are seen on all scales, from flows in brooks, to the atmosphere, to the fluidic aether in which KH electron vortices eventually come into existence.
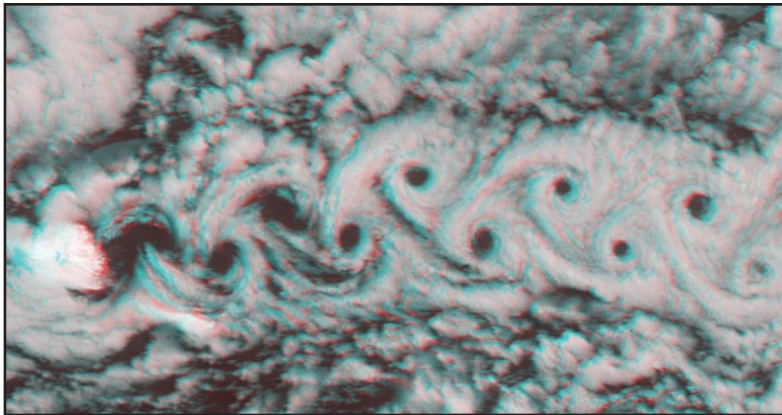
Figure 2. Illustration of von Karman street (source: [7], see also [8])

Alternating transverse forces can act on a cylinder, for example a telephone wire, which can make it vibrate. This is the reason why wires "sing" in the wind. The wire cylinder is stationary in a stream of moving media. Behind the cylinder is a turbulent wake of slowed

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air. Two vortex sheets are formed on each side of the wake, and their instability results in the vortex streets (streams of vortices). Vortices are formed in a Kelvin-Helmholtz instability in the same way. Analogous effects occur in aether flows which pass around an existing electron sphere, but in this situation the resulting "street" of vortices form into rings, which are exactly many newly formed **KH** vortices.

Vortex "shedding" produces resonances with the object that impeded the flow. In this case, the vortices are resonant with the existing electron. This means the positron could be viewed as an "anti-resonant" particle. Resonance at this level will constrain the vortices in the "street" to form duplicates that are the same as the original forms, in terms of "aether mass" (constrained aether forms). This also implies that positrons can be the basis for the formation of new electrons, in the parallel aether stream. See figure 3.
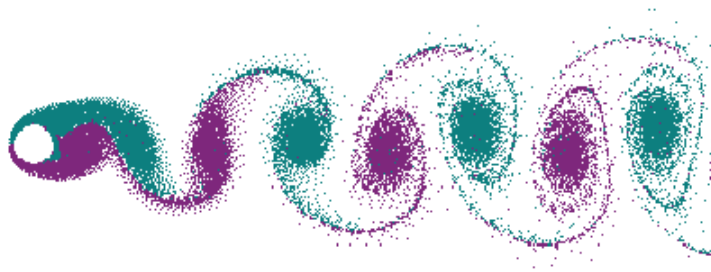
Figure 3. alternating electron-positron, alternating rotation directions
(After RN Boyd)
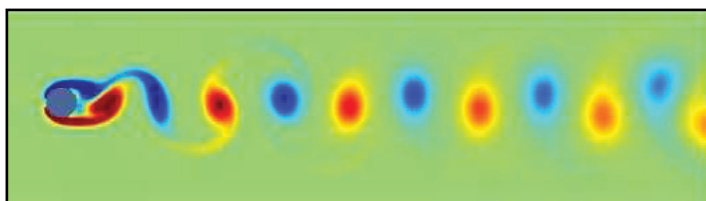
Figure 4. alternating electron-positron (After RN Boyd)

The above figure 4 is an alternative version of Figure 3. This raises a number of questions: Does this imply that both positive and negative charges already both exist, internal to the aether which comprises the aether winds? This implies that behaviors of obstructed aether flows are the origination of the **cause** of the distinct <u>charges</u> of electrons and positrons, and of electrons and protons.

The **KH** vortex model of the electron is simultaneously a sphere, surrounding a nest of concentric smaller vortices, which have a vortex ring at the middle of the concentric aether flows which comprise the particle. So the ring model is only partially valid.

Kelvin-Helmholtz electron vortex & origination of charge and matter

Vortex lines have been postulated to study fluid dynamics. A vortex line has a finite "strength" (vorticity times area), but a zero area, similar to the understanding that a dipole has zero length. Vortex lines tend to propagate at infinite velocity, unless the lines remain absolutely straight. (This would be the 5th aether phase state in Mishin's 5-phase aether dynamics. See diagram no. 5)

Importantly, the instant a vortex line departs from an absolutely straight line of propagation, **charge develops** in all the vortex lines that are bent. According to the direction of the bend, away from a perfectly straight line, a positive or a negative charge develops.

Parity (handedness) is directly involved in the development of charge. Parity determines the sign of the charge. The internal quantum numbers of electrons are opposite to those of positrons, which is just a restatement of the handedness (parity) of the internal aether circulation directions. The involvement of superluminal SQ infinitesimals in the formation of electrons and positrons, and superluminal internal circulations of the aether constituents of electrons and positrons, eliminates Lorentz "invariance" from consideration.

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Lorentz "invariance" is only valid for a **single absolute value of c**, which value wasexperimentally proven to vary by as much as plus and minus 3000 meters per second, as recorded in the handwritten log-books associated with the hundreds of repetitions of the Michelson-Morely experiments during the last century. In addition, Lorentz "invariance" has nothing to do with electrons, positrons, and so on, due to the fact that "invariance" is only valid for exact specific Prespacetime velocity <u>photons</u>, which are **not identical** to electrons, contrary to the expressions of Heisenberg in his first book on quantum theory.

Vortex lines circulating internal to electrons or positrons are **always** bent away from a straight line, so the vortex lines circulating internal to electrons and positrons are **always creating charge**. This is the **origination of charge** and the reason charge never ceases, as long as the charged particle exists.

In addition, the electron-positron pairs are forming in aether-connected chains, which chains are responsible for the creations of atoms, as well as protons and neutrons, in a manner which depends on how long is the "street" of connected electron-positron pairs, which in turn, become parts of the nucleus of the new atom, in terms of the atomic number of the nucleus of the atom, in an *e-p* pair model of the composition of, and the construction of, the protons and neutrons which comprise the nuclear particles of atoms.

If the parallel aether flows which are forming chains of e-p pairs are short-lived, we will only see hydrogen, or perhaps the occasional helium atom being generated. Longer e-p chains result in larger atoms. The local density of types of atoms and alignments of atoms, may give an indication of the frequency of aether wind streamlines, in that region. Proper instrumentation of vortex-line (SQ infinitesimals) resultant behaviors can be used to map astronomical space, comprising an infinite range observation capability, due to the fact that vortex lines propagate with infinitevelocity.

Conclusion

There are various models of electron which have been suggested, for instance see Chekh et al. [10]. But we seek a model which is close to experiments conducted by Bostick et al. [9]. Our attempt to explain such experiments of electron creation in plasma allows us to come up with a new model of electron, based on Helmholtz's electron vortex theory. In turn, we discussed a plausible model of electron capture event inside Earth (matter creation), which in turn could serve as a basis to explain Le Sage/Laplace's push gravity.

We also discussed among other things how relevant is Kolmolgorov theory of turbulence, von Karman vortex street etc. to KH electron vortex. We further discuss a new model of origination of charge and matter.

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Research Article

What They Don't Teach You at Harvard-Smithsonian In Search of Navier – Stokes Model of the Solar System

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Abstract

In this paper, we will discuss shortly a nonlinear cosmology model inspired by analogy between cosmology phenomena and low temperature physics, especially superfluid vortices dynamics. We described: (a) a nonlinear cosmology model based on Navier-Stokes turbulence equations, which then they are connected to superfluid turbulence, and (b) the superfluid turbulence can lead to superfluid quantized vortices, which can be viewed as large scale version of Bohr's quantization rule, and (c) this superfluid quantized vortice interpretation of Bohr's rule allow us to predict quantization of planetary orbits in solar system including new possible orbits beyond Pluto. This paper is intended as a retrospect of what happened after the publication of earlier papers, and also some related ideas we developed since that time. In the second section we also discuss a recent development in matter-creation

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hypothesis, by virtue of unmatter concept and its extension. It is our hope that the new proposed view will inspire younger physicists and cosmologists to develop more realistic nonlinear cosmology models. And although some of our predictions since 2004 have come to observed data, we also hope the ideas presented here can be further verified with observation data

Keywords: nonlinear cosmology, Newtonian cosmology, vortex dynamics, superfluid turbulence, Navier-Stokes equations, Ermakov-type equation, unmatter, matter-creation.

Introduction

Cosmology models of various kind have been developed in the past decades, with the Lambda-CDM as accepted Standard Model. However, there are known problems with the so-called Lambda-CDM model which forms the basis of Big Bang Cosmology, one of these problems is that Lambda-CDM model is based on linear cosmology, while many phenomena in the Universe are mostly nonlinear in processes and nature.

In this paper, we will discuss shortly a nonlinear cosmology model inspired by analogy between cosmology phenomenaand low temperature physics, especially superfluid vortex. We described: (a) a nonlinear cosmology model based on Navier- Stokes turbulence equations, which then they are connected to superfluid turbulence, and (b) the superfluid turbulence can lead to superfluid quantized vortices, which can be viewed as large scale version of Bohr's quantization rule, and (c) this superfluid quantized vortices interpretation of Bohr's rule allow us to predict quantization of planetary orbits in solar system including new possible orbits beyond Pluto.

This paper is intended as a retrospect of what happened after the publication of earlier papers, and also some related ideas we developed since that time. In the second section we also discuss a recent development in matter-creation hypothesis, by virtue of unmatter concept and its extension.

Section A: Cantorian Superfluid Turbulence Cantorian Superfluid Universe

Since more than 16 years ago, my first paper was published in *Apeiron Journal*, January 2004, while a condensed version of the ideas has been published earlier at July 2003 [6][7].

Among key ideas in those two papers are (a) a nonlinear cosmology model based on Navier-Stokes turbulence equations, which then they are connected to superfluid turbulence, and (b) the superfluid turbulence can lead to superfluid quantizedvortices, which can be viewed as large scale version of Bohr's quantization rule, and (c) this superfluid quantized vortices interpretation of Bohr's rule allow us to predict quantization of planetary orbits in solar system including new possible orbits beyond Pluto. Then a follow-up paper was published in July 2004, because I read about recent discovery of Sedna, which at the time it was the first discovered planetoid at the outer side of Pluto.

The discovery by Mike Brown-Trujillo team from Caltech was quite a big news back then. Other discoveries of new planetoids beyond Pluto have been reported since then, which seem to cause IAU to admit in a conference held around 2005: Pluto is no longer the edge of our solar system.

As with ourselves, the truth was that I was refused to publish more papers in Apeiron. So he decided to send subsequent papers to other journals, like *Annales de la Fondation Louis de Broglie* [8], after kind help by an editor oAf peiron Journal.

After bouncing back and forth with other topics in astrophysics and quantum mechanics, finally VC found back his early interest on Cantorian turbulence cosmology. In a series of papers published in *Prespacetime Journal*, since 2010 up to 2017, we explored topics like Primordial Rotation of Universe and also Cantorian Navier-Stokes cosmology (minus the superfluid term in 2004 paper), see [18]-[20].

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Now, in this paper allow us to summarize a few new findings related to that topic.

In this paper we will discuss a novel Newtonian cosmology model with vortex dynamics, especially with a numerical solution of 3D Navier-Stokes equations. It is our hope that the new proposed view will lead to more rigorous nonlinear cosmology models beyond the conventional Big Bang Standard Model Cosmology taught in most centers of astrophysics, like *Harvard Smithsonian of Astrophysics*. And although some of my earlier predictions at 2004 have found way to be observed, we also hope the ideas presented here can be further verified with observation data.

A few theoretical backgrounds

Some years ago, Matt Visser asked the following interesting questions: How much of modern cosmology is really cosmography? How much of modern cosmology is independent of the Einstein equations? (Independent of the Friedmann equations?) These questions are becoming increasingly germane — as the models cosmologists use for the stress-energy content of the universe become increasingly baroque [5].

In this regard, academician Isaak Khalatnikov mentioned at the 13th *Marcel Grossman Conference*[2] , that Lev Landau suggesting that something is too symmetric in the models yielding singularities, and that this problem is one of the three most important problems of modern physics. The aim of this report is to show that singularities are, indeed, consequences of such an overly "symmetrical approach" in building non-robust (i.e. without structural stability) toy models with singularities. Such models typically apply a synchronous system of reference and "Hubble's law", neglecting not-to-be-averaged-out quadratic terms of perturbations (specifically, differentially rotational velocities, vortexes) [1].

Only by accounting the overlooked factors instead of Einstein's ad hoc introduction of a new entity, which was later declared by him as his "*biggest blunder*", can we correctly interpret accelerated cosmological expansion, as well as provide possibility of static solution. The common perception of the observed accelerated expansion is that there is need either in modifying the General Relativity or discover new particles with unusual properties. Interestingly enough, both ways are possible depending on what kind of system of reference and corresponding interpretation are chosen, a decision which is usually made depending on the level of "*geometrization*" [1].

Local rotations (vortices) play a role in radical stabilization of the cosmological singularity in the retrospective extrapolation, making possible a static or steady-state (on the average) Universe or local region. Therefore Einstein could "permit" the galaxies to rotate instead of postulating a cosmological constant *ad hoc* in his general-relativistic consideration of a static Universe. Though, it does not necessarily mean that the cosmological constant is not necessary for other arguments [2].

A Few Historical Notes

Since long time ago, there were numerous models of the Universe, going back to Ptolemaic geocentric model, which was subsequently replaced by Nicolas Copernicus discovery. Copernicus model then was brought into fame after Isaac Newton published his book. But other than Newton, there was a model of Universe as a turbulent fluid (hurricane) brought by a French philosopher and mathematician, R. Descartes. But, his model was almost forgotten after rebuttal by Newton. Many physicists rejected Descartes' model because it stood against Newtonian model, but the truth is turbulence model can be expressed in Navier-Stokes equations, and Navier-Stokes equations can be considered as a rigorous formulation of Newtonian laws, especially for fluid dynamics. In other words, we can say

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that a Newtonian turbulence Universe is not necessarily in direct contradiction with Newtonian dynamics. Therefore, in this paper we submit wholeheartedly a proposal that the Universe can be modelled as Newtonian-Vortex based on 3D Navier-Stokes equations. We shall show some implications of this new model in the following sections.

Solar System Model

In this section, we will review the work which was carried out by me and with kind help of Prof. Florentin Smarandache from UNM, during the past ten years or so. The basic assumption here is that the Solar System's planetary orbits are quantized. But how do their orbits behave? Do they follow Titius-Bode's law? Our answer can be summarized as follows: [6][7][8].

Navier–Stokes equations → superfluid quantized vortices → Bohr's quantization rule (1)

Our predictive model based on that scheme has yielded some interesting results which may be comparable with the observed orbits of planetoids beyond Pluto, including what is dubbed as Sedna [9]. It seems that the proposed model is slightly better compared to Nottale-Schumacher's gravitational Schrödinger model and also Titius-Bode's empirical law. See table 1 below.

Object	No	Titius	Nottale	CSV	Observ.	Δ, %
	1		0.4	0.43		
	2		1.7	1.71		
Mercury	3	4	3.9	3.85	3.87	0.52
Venus	4	7	6.8	6.84	7.32	6,50
Earth	5	10	10.7	10.70	10.00	-6.95
Mars	6	16	15.4	15.4	15.24	-1.05
Hungarias	7		21.0	20.96	20.99	0.14
Asteroid	8		27.4	27.38	27.0	1.40
Camilla	9		34.7	34.6	31.5	-10.00
Jupiter	2	52		45.52	52.03	12.51
Saturn	3	100		102.4	95.39	-7.38
Uranus	4	196		182.1	191.9	5.11
Neptune	5			284.5	301	5.48
Pluto	6	388		409.7	395	-3.72
2003EL61	7			557.7	520	-7.24
Sedna	8	722		728.4	760	4.16
2003UB31	9			921.8	970	4.96
Unobserv.	10			1138.1		
Unobserv.	11			1377.1		

Table 1: Comparison of prediction and observed orbit distance of planets in solar system (in 0A.1U unit)[28]

Table 1: Comparison between Laurent Nottale's results, Titius-Bode law, and CSV. (After V. Christianto, Apeiron, July 2004. URL: http://redshift. vif.com).

Numerical solution of 3D Navier-Stokes equations

In fluid mechanics, there is an essential deficiency of the analytical solutions of non-stationary 3D Navier–Stokes equations. Now, instead of using linearized NS equations as above, we will discuss a numerical solution of 3D Navier-Stokes equations based on Sergey Erhskov's papers [13][14].

The Navier-Stokes system of equations for incompressible flow of Newtonian fluids can be written in the Cartesian coordinates as below (under the proper initial conditions): [13]

$$\nabla . \bar{u} = 0, \tag{2}$$

$$\frac{\partial \bar{u}}{\partial t} + (\bar{u} \cdot \nabla)\bar{u} = -\frac{\nabla p}{\rho} + v \cdot \nabla^2 \bar{u} + \bar{F}. \tag{3}$$

Where u is the flow velocity, a vector field, ρ is the fluid density, p is the pressure, v is the kinematic viscosity, and F represents external force (per unit mass of volume) acting on the fluid [13].

In ref. [13], Ershkov explores new ansatz of derivation of non-stationary solution for the Navier–Stokes equations in the case of incompressible flow, where his results can be written in general case as a mixed system of two coupled-Riccati ODEs (in regard to the time-parameter t). But instead of solving the problem analytically, we will try to find a numerical solution with the help of computer algebra package of *Mathematica* 11.

The coupled Riccati ODEs read as follows: [13]

$$a' = \frac{w_y}{2} \cdot a^2 - (w_x \cdot b) \cdot a - \frac{w_y}{2}(b^2 - 1) + w_z \cdot b, \tag{4}$$

$$b' = -\frac{w_x}{2} \cdot b^2 + (w_y \cdot a) \cdot b + \frac{w_x}{2}(a^2 - 1) - w_z \cdot a. \tag{5}$$

First, equations (4) and (5) can be rewritten in the form as follows:

$$x(t)' = \frac{v}{2} \cdot x(t)^2 - (u \cdot y(t)) \cdot x(t) - \frac{v}{2}(y(t)^2 - 1) + w \cdot y(t), \tag{6}$$

$$y(t)' = -\frac{u}{2} \cdot y(t)^2 + (v \cdot x(t)) \cdot y(t) + \frac{u}{2}(x(t)^2 - 1) - w \cdot x(t). \tag{7}$$

Then we can put the above equations into Mathematica expression:[3]

```
v=1;
u=1;
w=1;
{xans6[t_], vans6[t_]}=
{x[t],y[t]}/.Flatten[NDSolve[{x'[t]==(v/2)*x[t]^2-(u*y[t])*x-
[t]-(v/2)*(y[t]^2-1)+w*y[t], y'[t]==-(u/2)*y[t]^2+(v*x-
[t])*y[t]+(u/2)*(x[t]^2-1)-w*x[t], x[0]==1,y[0]==0},
{x[t],y[t]},{t,0,10}]]
graphx6 = Plot[xans6[t],{t,0,10}, AxesLabel->{"t","x"},Plot-
Style->Dashing[{0.02,0.02}]];
Show[graphx6,graphx6]
```

The result is as shown below: [3]
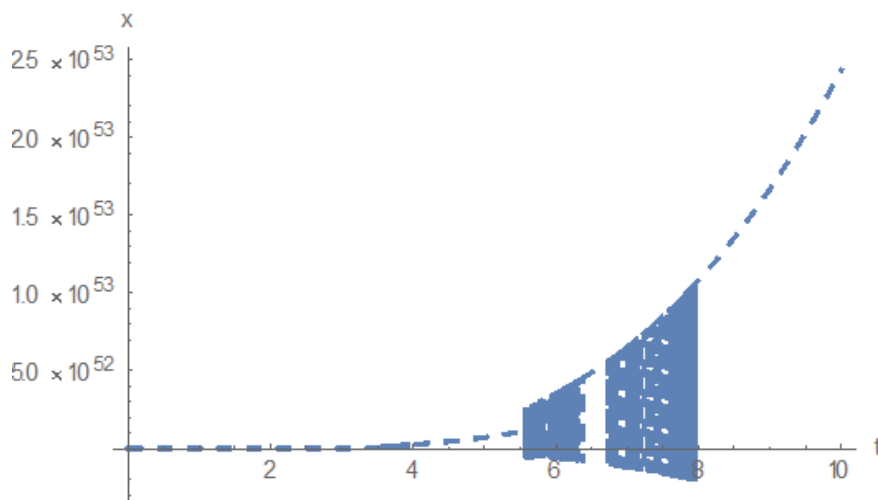
DIAGRAM 1: Graphical plot of solution for case v=u=w=1. See [3]

Section B: Matter-creation process and unmatter hypothesis

Matter-creation process and unmatter phenomena Physicists throughout many centuries have debated over the physical existence of aether medium. Since its inception by Isaac Newton and later

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on by others too, many believed that it is needed because otherwise there is no way to explain *interaction at a distance* in a vacuum space. We need medium of interaction, of which has been called by various names, such as: quantum vacuum, zero point field, etc .

Nonetheless, modern physicists would answer: no, it is not needed, especially after Special Relativity theory. Some would even say that aether has been removed even since Maxwell's theory, but it is not true: James Clark Maxwell initially suggested a mechanical model of aether vortices in his theory [31-33]. Regardless of those debates, both approaches (with or without assuming aether) are apparently resulting in the same empirical results, but with entirely different physical processes and assumptions.

The famous *Michelson–Morley* experiments were thought to give null result to aether hypothesis, and historically it was the basis of Einstein's STR. Nonetheless, newer discussions proved that the evidence was rather ambiguous, from MM data itself. Especially after *Dayton Miller's* experiments of aether drift were reported, more and more data came to support aether hypothesis,3 although many physicists would prefer a new terms such as physical vacuum or superfluid vacuum [34-38].

Once we accept the existence of aether as physical medium, then we can start to ask on what causes matter ejection, as observed in various findings related to quasars etc. One particular cosmology model known as VMH (variable mass hypothesis) has been suggested by notable astrophysicists like Halton Arp and Jayant V. Narlikar, and the essence of VMH model is matter creation processes in various physical phenomena. Nonetheless, matter creation process in Nature remains a big mystery for physicists, biologists and other science researchers. To this problem *Neutrosophic Logic* offers a solution.4

Let us assume that under certain conditions that aether can transform using Bose condensation process to become "unmatter", a transition phase of material, which then it sublimates into matter

(solid, gas, liquid). *Unmatter* can also be considered as "*pre-physical matter*."

Summarizing our idea, it is depicted in the following block diagram:

Aether → bose condensation → "unmatter" (pre-physical matter) → sublimation → ordinary matter/particle

Diagram 2: How aether becomes ordinary matter

In this paper, unmatter is considered as a transition state (pre-physical) from aether to become ordinary matter/particle, see also [42]. Moreover, superfluid model of dark matter has been discussed by some authors [43].

As one more example of our proposed scheme of transition from aether to matter, see a recent paper [44]. See the illustrations at pages 5 and 6 of [18] regarding the physically observed properties of the Galactic Center (GC), which are obviously completely different from the imaginary "*black hole*" model. The mapping of the magnetic field structures of the Core is a profile of a torus, as we have previously suggested. Page 5 in that paper also illustrates the relation between Sag A and Sag B and the space in between them. These illustrations are also relevant to *matter creation* at the galactic scale. Also note the gamma ray distributions in [44], which are relevant to matter destruction processes. Electrical discharges such as lightning, stars, and galaxies, all produce gamma rays.

Aether winds can be superluminal, or subluminal. The velocity and temperature of the aether is a determining factor in many normal matter events. For example the mixing rate and interaction rate of various chemical reactions can be increased or slowed down by aether processes. Frolov talks about this, and has a machine that can slow down or speed up chemical reactions, using aether activities.

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Probably, additional creation processes such those produced via B/E condensates, can happen internal to the planet. There may be other processes, as well, involving other phase states of the 5 phase-state aether (Mishin5). This can be modeled by considering interactions among the phase states of normal matter, which we suggest are analogous to the phase-state behaviors of aether matter. So normal matter fluids cooling off, create solids, for example.

In our present view, this happens with aether-matter, as well. So the 5 phase aether has energy density capacities which are dependent on which aether phase we are examining. The same can be said of normal matter, as well as aether matter. We have to start viewing the aether as another kind of matter, because it makes understanding so much easier, and because, so far, the analogy has been accurate to the observable facts.

In other side, it is known that astronomers find that only 1% of matter in the universe is observed, while 99% is undetected. That is why they call it the Hidden Universe. Could it be that aether (may be in form of superfluid medium, a ka Mishin phase state) can be an intermediate entity in Neutrosophic sense?

In this line of thought, it is possible to come up with an expanded model of unmatter, as follows:
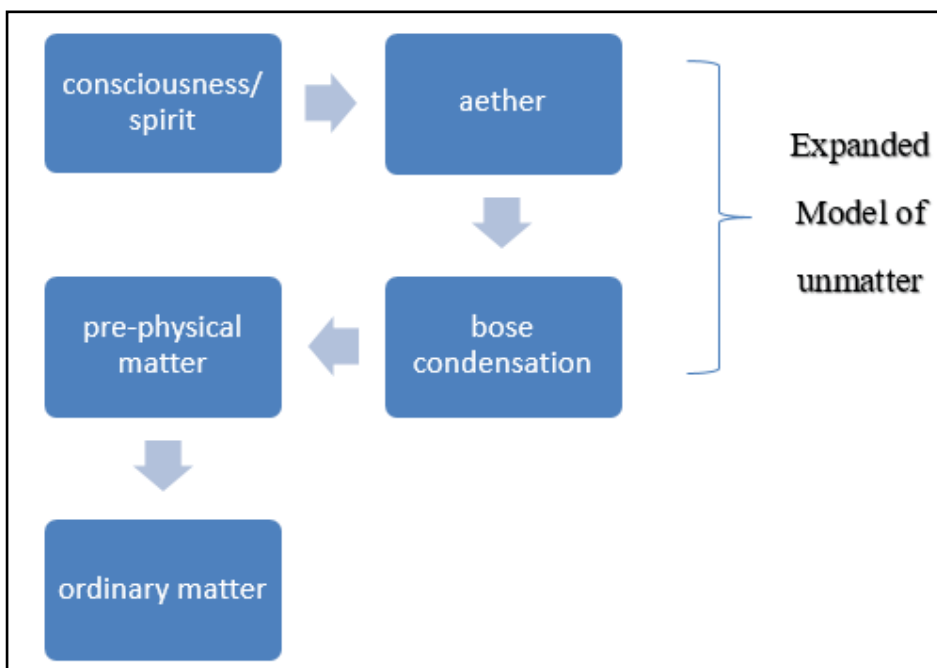
Diagram 3: An expanded model of unmatter
(After Christianto, Smarandache, Boyd [45])

May be it is because the remaining entities are in the form of consciousness, aether and pre-physical matter. That is what can be called as *"expanded model of unmatter."* See [45].

Concluding remarks

It is known that most existing cosmology models are linear in nature, while large scale phenomena are mostly nonlinear, therefore it is required to come up with a nonlinear cosmology model. Moreover, it has been known for long time that most of the existing cosmology models have singularity problem.

Cosmological singularity has been a consequence of excessive symmetry of flow, such as "Hubble's law". More realistic one is

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suggested, based on Newtonian cosmology model but here we include the vortical-rotational effect of the whole Universe.

We also discuss on how to solve 3D Navier-Stokes equations numerically. It is our hope that the above numerical solution of 3D Navier-Stokes equations can be found useful.

The solutions obtained here open up new ways to interpret existing solutions of known 3D Navier-Stokes problem in physics, astrophysics, cosmology and engineering fields, especially those associated with nonlinear hydrodynamics and turbulence modelling.

Further theoretical as well as observational investigations are recommended.

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An explanation of Sedna orbit from condensed matter or superconductor model of the solar system: A new perspective of TNOs

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An Explanation of Sedna Orbit from Condensed Matter or Superconductor Model of the Solar System: A New Perspective of TNOs

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Abstract

In a recent paper, we argued in favor of the Gross-Pitaevskii model as a complete depiction of both the close planetary system and winding worlds, particularly considering the idea of chirality and vortices in universes. In this paper, we apply the new model based on Bogoliubov-de Gennes equation

correspondence with Bohr-Sommerfeld quantization rules. Then we put forth an argument that from Bohr-Sommerfeld quantization rules, we can come up with a model of quantized orbits of planets in our solar system, be it for inner planets and also for Jovian planets. In effect, we also tried to explain Sedna's orbit in the same scheme.

Introduction

A few abbreviations used in this paper: TNO: trans-Neptunian object; KBO: Kuiper-Belt Object. Every once in a while, cosmology and astronomy revelations have opened our eyes that the universe is substantially more entangled than what it appeared in 100-200 years prior. What's more, regardless of all invading fame of General Relativistic augmentation to Cosmology, considering antiquated Greek rationalists' theories, for example, hydor model (Thales) and streaming liquid model (Heracleitus) it appears to be as yet qualified to ask: does it imply that the Ultimate hypothesis that we attempt to discover ought to compare to hydrodynamics or a disturbance hypothesis [1-3].

Meanwhile, in a recent article, we presented some new contentions on the hypothetical small star thought to be an ally to our Sun, known as the Nemesis, which is proposed to clarify an apparent pattern of mass eradications in Earth's history. Some guessed that such a star could influence the circle of articles in the far external close planetary system, sending them on a crash course with Earth. While ongoing cosmic reviews neglected to discover any proof that such a star exists, we layout in this article some hypothetical discoveries including our own, suggesting that such a dwarf star companion of the Sun remains a possibility [4]. And one good indicator for such a dwarf companion of the Sun is Sedna, a planetoid which has been discovered around 2004 by Mike Brown and his Caltech team. Sedna location and eccentric orbit are such that it is not supposed to be there [5-10].

Therefore a physical explanation of why Sedna is located there can be a good start to begin to search the existence and location of the supposedly dwarf companion of the Sun.

Method

Methodology used in this paper: we develop a new conceptual/mathematical model then compare it with the supporting evidences.

Bohr-Sommerfeld Quantization Rules and Quantized Approach

Here we present Bohr-Sommerfeld quantization rules for planetary circle separations, which brings about a decent quantitative depiction of planetary circle separation in the Solar system [11-14].

First of all, let us point out some motivations for utilization of Bohr-Sommerfeld quantization rules: (a) the neat correspondence between Bohr-Sommerfeld quantization rules and topological quantization as found in superfluidity, and (b) there is neat correspondence between Bogoliubov de Gennes and generalized Bohr-Sommerfeld quantization can be applied to large scale systems like Solar system. (c) In the next section, we suggest another alternative approach, i.e. Eilenberger equation, which reduces to scalar model of Riccati equation [15]. As we have discussed how Riccati equation can be neatly linked to Newton equation, then it seems possible to use this approach too.

Eilenberger Equation Reduces to Scalar Riccati Equation

In this section, we suggest another alternative approach, i.e. Eilenberger equation, which reduces to scalar model of Riccati equation [15]. As we have discussed how Riccati equation can be neatly linked to Newton equation, then it seems possible to utilized this approach too [15]. Another parametrization of the Eilenberger

conditions of superconductivity regarding the answers for a scalar differential condition of the Riccati type is presented. It is indicated that the quasiclassical propagator might be remade, without express information on any eigenfunctions and eigenvalues, by taking care of a straightforward beginning worth issue for the linearized Bogoliubov-de Gennes conditions. The Riccati parametrization of the quasiclassical propagator leads to a stable and fast numerical method to solve the Eilenberger equations [16].

Therefore it appears that we can utilize Eilenberger equation which is an alternative to Bogoliubov-De Gennes equation for description of superconductors. According to Schopol, the Eilenberger reduces to Riccati equation:

$$h_{vF} \frac{\partial}{\partial x} b_x + [2\bar{\varepsilon}_n + \Delta(x)b_x] + \Delta^\dagger(x) = 0, \tag{1}$$

which after some steps it will yield a system of coupled Riccati ODEs. Interestingly it can be shown that angular momentum conservation combined with power law potentials can be recast into a Riccati ODE:

$$\frac{1}{2}m\dot{r}^2 + \left(\frac{1}{2}+\frac{1}{\epsilon}\right)\frac{1}{mr^2} - \frac{m\dot{r}r}{\epsilon} - E = 0. \tag{2}$$

Therefore, our hypothesis is that such a Riccati ODE (2) may be linked to scalar Riccati ODE as a reduction to Eilenberger Equation. Numerical solution of equition (2) can be done with Mathematica or other computer algebra software.

In retrospect, we can recall the fact that there is a known Pioneer anomaly, which can be interpreted as an anomalous (scalar) acceleration after the Pioneer spacecraft enters the Jupiter's orbit and on. Therefore it can be interpreted as a possible indicator of the existence of scalar effect of Riccati ODE.

Result and Discussion

The quantization of circulation for nonrelativistic superfluid is given by [5]:

$$\oint v\,dr = N\frac{\hbar}{m_s} \tag{3}$$

where N, $\hbar$, m_s represent winding number, diminished Planck steady, and superfluid molecule's mass, individually.

$$N = \frac{\omega\,2\pi\,r^2 m}{\hbar} \tag{4}$$

Also, in light or the above condition (4), Sivaram & Arun [17] can give a gauge of the quantity of cosmic systems known to man, alongside a gauge of the number stars in a universe. In any case, they don't give clarification between the quantization of dissemination (5) and the quantization of rakiz energy. As indicated by Fiscer [8], the quantization of precise force is a relatistic augmentation of quantization of dissemination, and along these lines it yields Bohr-Sommerfeld quantization rules.

Besides, it was recommended that Bohr-Sommerfeld quantization rules can yield a clarification of planetary circle separations of the Solar framework and exoplanets [1,19]. Here, we start with Bohr-Sommerfeld's guess of quantization of rakish energy. As we probably am aware, for the wavefunction to be all around characterized and remarkable, the momenta must fulfill Bohr-Sommerfeld's quantization condition:

$$\oint_{\Gamma} p\,dx = 2\pi\,n\hbar, \tag{5}$$

for any closed classical orbit Γ. For the free particle of unit mass on the unit sphere the left-hand side is:

$$\int_0^T v^2\,d\tau = \omega^2 T = 2\pi\omega, \tag{6}$$

where $T = \frac{2\pi}{\omega}$ is the period of the orbit. Hence the quantization rule amounts to quantization of the rotation frequency (the angular momentum) $\omega = n\hbar$. Then we can write the force balance relation of Newton's equation of motion:

$$\frac{GMm}{r^2} = \frac{mv^2}{r}. \tag{7}$$

Using Bohr-Sommerfield's hypothesis of quantization of angular momentum (6), a new constant g was intoduced:

$$mvr = \frac{ng}{2\pi}. \tag{8}$$

Just like in the elementary Bohr theory (just before Schrodinger), this pair of equations yields known simple solution for the orbit radius for any quantum number of the form:

$$r = \frac{n^2 g^2}{4\pi^2 G M m^2}, \tag{9a}$$

or

$$r = \frac{n^2 G M}{v_0^2}, \tag{9b}$$

where r, n, G, M, v_0 represent orbit radii (semimajor axes), quantum number ($n=1,2,3,\ldots$). Newton gravitation constant, mass of the nucleus of orbit, and specific velocity, respectively. In equation (10), we denote:

$$v_0 = \frac{2\pi}{g} G M m. \tag{10}$$

The value of m,g in equation (10) parameters.

Strikingly, we can comment here that condition (9b) is actually the equivalent with what is gotten by Nottale utilizing Schrodinger-Newton formula [17]. In this manner here we can check that the outcome is the equivalent, it is possible that one uses Bohr-Sommerfeld quantization rules of Schrodinger-Newton condition. The relevance of condition (9b) incorporates that one can anticipate new exoplanets (i.e., extrasolar planets) with noteworthy outcome.

Thusly, one can locate a flawless correspondence between Bohr-Sommerfeld quantization rules and movement of quantized vortices in consolidated issue frameworks, particularly in superfluid helium [1,20]. Here we propose a conjecture that superfluid vortices quantization rules also provide a good description for the planetary orbits in our Sollar System. An idea that given the chemistry composition of Jovian planets are different from inner olanets began

around 15 years ago, therefore it is likely both series of planets have different origin. By assuming inner planets orbits have different quantum number from Jovian planets, here by using "least square difference" method in order to seek the most optimal straight line for Jovian planets orbits in a different quantum number. Then it came out that such a straight line can only be modelled if we assume that the Jovian planets were originated from a twin star system: the Sun

and its companion, using the notion of $\mu = \frac{m_1 m_2}{m_c}$ is the reduced mass.

Although based on statistical optimization [20,21], it yields new prediction of 3 planetoids in the outer orbits beyond Pluto, from which prediction, Sedna. A table as shown below shows how our simple model based on largescale quantization inspired by Bohr–Sommerfeld rule obtains a remarkably good prediction compared to observation:

TABLE 1. Comparison of prediction and observed orbit distance of planets in Solar system (in 0.1 AU unit) [22]

Object	No.	Titius	Nottale	CSV	Observ.	Δ, %
	1.		0.4	0.43		
	2.		1.7	1.71		
Mercury	3.	4	3.9	3.85	3.87	0.52
Venus	4.	7	6.8	6.84	7.32	6.50
Earth	5.	10	10.7	10.70	10.00	-6.95
Mars	6.	16	15.4	15.4	15.24	-1.05
Hungarias	7.		21.0	20.96	20.99	0.14
Asteroid	8.		27.4	27.38	27.0	1.40
Camilla	9.		34.7	34.6	31.5	-10.00
Jupiter	2.	52		45.52	52.03	12.51
Saturn	3.	100		102.4	95.39	-7.38
Uranus	4.	196		182.1	191.9	5.11
Neptune	5.			284.5	301	5.48
Pluto	6.	388		409.7	395	-3.72
2003EL61	7.			557.7	520	-7.24
Sedna	8.	722		728.4	760	4.16
2003UB31	9.			921.8	970	4.96
Unobserv.	10.			1138.1		
Unobserv.	11.			1377.1		

Further Evidences: Superfluidity of Solar Interior and Pairing of TNO Objects

In the aforementioned sections, we put forth an argument in favor of low temperature physics model of solar system, in particular using Bogoliubov-de Gennes equations which are normally utilized for superconductors. While this makes the model a bit simpler and comprehensible, one may ask: what are other evidences available to justify the BdG model for the Solar system. In this regards, allow us to submit three supporting evidences which seem to correspond to the conceptual model as we outlined above:

- Pairing of Pluto-Charon and other TNOs/KBOs seem to be attributed to the BCS/BdG pairing condition → pointing to low temperature physics model of Solar System.
- Solar interior has superfluid inner structure [24].
- Some literatures argue that G1.9 is remnant of supernovae, others argue that G1.9 cannot be supernovae, instead it is more plausible to argue that G1.9 is brown dwarf star.

First, the BdG model can be related to pairing of electrons, and as it has been discussed for instance in [25], when it is stated, which can be paraphrased as follows:

> "It is indicated that the Bogoliubov-de Gennes conditions pair the electrons in states which are direct blends of the typical states. For a homogeneous framework, we bring up that the part of the self-consistency condition got from the Bogoliubov-de Gennes conditions should be obliged by the BCS matching condition."

In this regard, we can point out that Pluto and Charon seem like evidences related to this pairing condition.

Furthermore, Sedna also has a pair planetoid. We can expect that planetoids found around Kuiper Belt (or may be dubbed as TNOs) can take place in pairs.

Second, we can point out the Solar interior which has superfluid inner structure as another evidence [24-27].

Other hint for physical evidence of superconductor/superfluidity nature of solar system may be found in icy dwarf nature of some planetoids and other TNOs objects and other objects beyond Kuiper Belt.

As with potential location to find the dwarf companion of the Sun, we can mention briefly here that since 2017, there is an object dubbed as G1.9 which was observed around 60-66 AU (around Pluto/Kuiper Belt). We can also note here: while some literatures argue that G1.9 is remnant of supernovae [22,25,28], others argue that G1.9 cannot be a supernovae, instead it is more plausible to argue that G1.9 is brown dwarf star. Therefore it can be a good start to find out whether the G1.9 is indeed the dwarf companion that we're looking for all along. See Fig. 1 below.
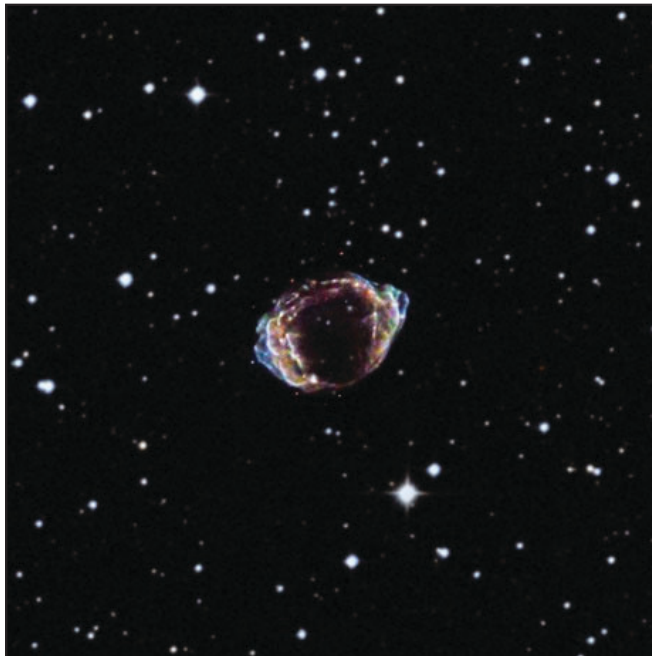
FIGURE 1. Gliese G1.9, a candidate of brown dwarf companion of the Sun [28-28a]

Conclusion

In this paper, we present an argument that Bohr-Sommerfeld quantization condition can be linked to Bogoliubovde Gennes equations, and thus it tends to be indicated that such a Bohr-Sommerfeld quantization can be connected to huge scope structure quantization, for example, our nearby planetary group in Solar system.

As with potential location to find the dwarf companion of the Sun, we can mention briefly here that since 2017, there is an object dubbed as G1.9 which was observed around 60-66 AU (around Pluto/Kuiper Belt). Therefore it can be a good start to find out whether the G1.9 is indeed the dwarf companion that we're looking for all along.

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SECTION 5
From Irrational Number to Electroculture

Exploring the Historical Debates on Irrational Numbers Using Neutrosophic Logic as a Balance between Intuition and Rational

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Abstract

A short book by Dennis P. Allen, Jr, a senior mathematician, inspires this article, and henceforth it is dedicated to him. A good movie about S. Ramanujan, The Man who knew Infinity, also triggers this work. As a note, this is not a conventional math paper. Instead, its purpose is to dig deeper into how a mathematician or a scientist should deal with intuition and balance it

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with a logical thinking process. Literature exploration on important inventions in mathematics becomes the method of this study combined with analysis of Iain a McGilchrist's theory and Wittgenstein's Philosophy of Language added with the Cognitive Theory. The findings show the absolutistic view of rationality or rational number will not suffice to give a holistic insight into reality. Such finding serves as a reminder concerning whom should be the Master and who should be the emissary in the path toward knowledge. Based on Neutrosophic Logic, the "intuilytics" which combines both parts of brain hemispheres might become the best contribute a holistic approach, something that hints that further exploration on the capacity of human brain or the essence of human beings is needed..

Introduction

In the writing of Krishnaswami Alladi, he commented movie The Man who knew Infinity, which depicts a story on how Ramanujan, a great mathematician from India met with another great mathematician in Cambridge, Prof G. Hardy[9]. The movie is more than just an exciting introduction to Ramanujan's remarkable invention of partition theorem, and also the number 1729 (discovery inspired by a taxicab number in London). It sharpens the contrasts between two significant figures in mathematics at their time. First is G. Hardy, who used a rigorous math-proving method, while the second, Ramanujan was intuitive in his approach.

While one can believe how things should work based on discovering new science and mathematics ideas from G. Hardy's famous book: A Mathematician's Apology, a more recent book by a psychiatrist Iain McGilchrist yields something fresh that might significantly shed light more holistically.

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9   Krishnaswami Alladi, review of the movie on the mathematical genius ramanujan (unknown date).

Hardy's account on Hippasus story

A book was written by mathematician Dennis Allen, Jr, as a memoir of his long career in various diverse areas in science serves as this article point of departure [1]. Allen opens Chapter One of his book by quoting Thomas Phipp, Jr.'s remark on G. Hardy's book A Mathematician's Apology: "People like G.H. Hardy ('A Mathematician's Apology, Cambridge, 1969), who forms the chief role models for modern pure mathematicians, have charted just this regrettable course - with a cost to mathematics that can never be reckoned. Hardy incidentally uses the word 'significance' where I use 'fruitfulness'. His 'mathematician's apology' consists of dividing mathematics into two disjoint halves, one 'trivial' or 'useful' that he consigns to perdition, the other 'real', useless, and …on both aesthetic and moral grounds. Writing in 1940, he says that 'No one has yet discovered any warlike purpose to be served by the theory of numbers or relativity', and by such reasoning places ….subjects on the moral plane of the angels along with all 'real' mathematicians".

With those statements, such as the usefulness and real, beauty mathematics which serve for nothing, the 26-dimensional bosonic superstring theories or something to serve people in doing better to improve their life apparently, it is not just a problem of fancy mathematics is at stake. Those judgmental statements need deeper analysis as it brings forward absolute rationalism.

Succinctly, this article posits the following questions: which is real mathematics? Is it "something with all glory and fanciness," or those which is "closer to realism?" If one call "realism" helpful in doing mathematics, does it mean that intuition in developing new ideas can play roles in the equations? Then, the main question is whether logical processes are the only method that humans should rely on or another possibility co-exists. Those questions could be related to the exploration of the essence of human beings and their

capacity in perceiving reality. The hypothesis of this article is that the absolutistic logical or rational approach is insufficient to depict reality as it needs an intuitive approach to yield a holistic result together. The hypothesis roots in view concerning the essence of human beings with the complex features in their brain capacities.

The method of this explorative study is literature exploration. Thus it belongs to a qualitative methodology. This short article's foci are as follows: first of all, the discussion will be on the classic story of Hippasus' invention: irrational numbers versus the famous Pythagoreans' approach. Then, the exploration of McGilchrist's concept of the Right and left brain will follow [3,14]. The last is the analysis on Logico Philosophico of Wittgenstein and Lakoff's Cognitive Linguistic Theory to shed light on the issues.

Literature analysis

What happened between hippasus and pythagoreans rationalism

In discussing G. Hardy's discovery of irrational numbers, Allen continues: "Further, Hardy's philosophy as set forth in his above mentioned book is fanciful in other ways too, as for example in his (with Wright) "An Introduction to the Theory of Numbers" (fourth edition) on page 39, he ascribes the proof that the square root of two is irrational-this being the first irrational number to be discovered - to Pythagoras".

Peter Gainsford also wrote: "There is a widespread notion that the discovery of irrational numbers was a thing of horror to the ancient Greeks, especially for the school of Pythagoras. Pythagoras is best known today for a famous theorem about right-angled triangles, but in antiquity, his significant contribution lies in the fact that he was a semi-legendary guru who founded a philosophical-religious sect in southern Italy. No writings by Pythagoras himself survive (and it is

unlikely he ever wrote any). The records about the sect sound bizarre at times such as the Pythagoreans conveyed their teachings only in a cave or they had weirdly specific beliefs about reincarnation, and they venerated unexpected plants like fava beans and mallow. The vast majority of this information is reported very late and is almost certainly false; the bits that are true (whichever ones they are) are difficult to understand out of context".

Gainsford went on with a quote from Kleine's book, discussing Hippasus: "In 1972, the mathematician Morris Kline wrote in his book Mathematical Thought from Ancient to Modern times (vol. 1, p. 32): Numbers to the Pythagoreans meant whole numbers only.... Actual fractions...were employed in commerce, but such commercial uses of arithmetic were outside the pale of Greek mathematics proper. Hence, the Pythagoreans were startled and disturbed by the discovery that some ratios -- for example, the ratio of the hypotenuse of an isosceles right triangle to an arm or the ratio of a diagonal to a side of a square -- cannot be expressed by whole numbers....The discovery of incommensurable ratios is attributed to Hippasus of Metapontum (5th cent. B.C.). The Pythagoreans were supposed to have thrown Hippasus overboard for having produced an element in the universe which denied the Pythagorean doctrine that all phenomena in the universe can be reduced to whole numbers or their ratios".

In short, this bitter denial of irrational numbers for centuries can be attributed to a conviction or belief that all things should be rational, something that may be called Pythagoreanistic rationalism. Only in the last centuries that Georg Cantor and others investigated irrational numbers.

Weierstrass discussed the real numbers' completeness publicly in the lectures he gave at Berlin University in 1865. Weierstrass's construction of irrational numbers used infinite sets of positive rationals with bounded partial sums. In 1872, Kossak publicized this construction. Later, Pincherle in 1883 and Biermann in 1997 further

expounded it. Weierstrass insisted on the foundational importance of the property that an infinite bounded set has a cluster point. Further, he added that a continuous function on a closed interval was bounded and attained its bounds. This statement is his invention.

The students of Weierstrass, notably H. A. Schwarz, who was a student in Berlin 1859-1861, and G. Cantor, a student in Berlin 1863- 1866, recognized the importance of Weierstrass's ideas and sought to present a more accessible construction of irrational numbers. In 1872, both Cantor and Heine (to whom Schwarz had been and whom Cantor was, an assistant at Halle) published constructions of irrational numbers as rational Cauchy sequences.

Referring back to the question posited earlier in this article whether similar debate concerning intuition and logical processes in these modern days continue, regretfully, the answer is affirmative. The underlying reason behind such continuous debate brings this study to the concept of McGilchrist that might shed light on it.

Contribution of Iain McGilchrist's concept

After discussing the historical origin of the irrational number, the contribution of Iain McGilchrist needs attention. As a psychiatrist, his arguments on the Left and Right (divided) brain function mean that the left hemisphere, which usually processes in detailed manner any problem (logically), should not predominate the right brain, capturing holistic and spiritual process. McGilchrist might echo the words of Blaise Pascal, a great mathematician from 16th century: "The heart has its Logic, which reason cannot understand".

In that sense, the left brain function should and could not rule over the right brain. In other words, fro example, in the spirituality, especially in worshiping God, the emissary who is the logical process should not predominate the human's heart as its Master. It should be the other way around.

This problem of choosing between Logic or going beyond Logic or rationality to go beyond rational thinking (intuition) can be traced back even to the classical history of mathematics. As discussed in the preceding section, Pythagoreans overly worshiped rationality and Logic in mathematics up to the point they could not absorb the shock when one of their disciples found an irrational number. The shock caused Pythagoreans to let the disciple get drown in the sea. In short, the Pythagoreans cannot fathom the contribution of the human brain's right-sphere in pursuing truth.

Similarly, in history, people cannot easily accept several mathematics inventions, such as transcendental numbers, complex numbers, transfinite set, Cantor sets, or non-Diophantine arithmetics.

Philosophy of language and cognitive linguistic theory

In 1918, the Austrian philosopher Ludwig Wittgenstein wrote the Tractatus Logico Philosophicus. Its content identified the relationship between language and reality, even to formulate the boundaries of science. This work emerged because he was concerned about seeing the many languages of philosophy and science collide and confuse people.

In this first work, Wittgenstein makes seven propositions. One of which is: A proposition is a picture of reality: for if I understand a proposition, I know the situation that it represents. And I understand the proposition without having had its sense explained to me. A proposition show its sense. A proposition shows how things stand if it is true. And says that they do so stand[10].

Thus, Wittgenstein stressed that the world is not an accumulation of things but facts. To clarify his proposition, he described the

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10 Vsevolod Ladov, "Wittgenstein's Tractatus Logico-Philosophicus and a Hierarchical Approach to Solving Logical Paradoxes', FilosofijaSociologija 30, no. 1 (2019): 4.021-4022, doi: 10.6001/fil-soc.v30i1.3914.

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differences between fact, forms, and substance[11]. Further, deviating from Immanuel Kant, for Wittgenstein, the substance only exists in the space of the world. The world consists of interrelated facts. Thus, humans make an effort to map or depict it. Language, whether it is oral, mathematical, artistic, or other kinds of symbols, are a human's effort to make such maps or pictures, but it needs roles as it only serves as a projection of reality or the world[12].

Wittgenstein also emphasizes that reality is complicated and ever-changing. Therefore, the effort to depict or map it needs more than the rational approach as human logic can be paradoxical[13]. Thus, mathematical language or symbol only serves essentially as symbols that interact and needs structure.

In the second phase of his thought, Wittgenstein realized that all language as the projection of reality exists in societal contexts. In his second work, Philosophical Investigation, he formulated a Language Game Theory. His work is often multi-interpretable. His concept is pervasive and all inclusive.

Some analysts view that Wittgenstein stayed away from any epistemological, metaphysical or theological discourse while other state that he included those dimensions in his writings implicitly, especially the essence of human beings which philosophically or theologically is loaded with the ability to create language[14]. Thus, he included theology which he coins as the grammar of God. Nevertheless, Wittgen- stein often signified that he opened a room of intuition or irrationality in the process of language creation. It is

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11 DAVID MILLER, "The Uniqueness of Atomic Facts in Wttgenstein's Tractatus', Theoria 43, no. 3 (1977): 174-85, doi: 10.1111/j.1755-2567.tb00786.x.
12 Antonio Manuel Liz Gutiérrez, "ZALABARDO, José Luis (2015): Representation and Reality in Wittgenstein's Tractatus. Oxford: Oxford University Press.," Daimon, no. 75 (2018), doi: 10.6018/daimon/346951.
13 Ladov, "Wittgenstein's Tractatus Logico-Philosophicus and a Hierarchical Approach to Solving Logical Paradoxes".
14 Tim Labron, Wittgenstein and Theology, Continuum, 2009 https://ndpr.nd.edu/reviews/wittgenstein-and-theology/

the capacity of human beings rooted in their existence. The name Language Game indicates that there are rational rules in the game and intuitive ways and spontaneity. Later, in 1970, a further and applicable concept emerges with the philosophy of language from Wittgenstein as backbone.

The spread of the Cognitive Linguistics theory shows dynamic energy that contributes to various frameworks for studying a natural language. This theory explores the meaning side of language. Thus, linguistic form and later symbols in their various forms become the focus to delve as the expressions of meaning[15]. According to the framework, meaning is not something that exists in isolation, but it connects and integrates with the full spectrum of human experience-something that Wittgenstein has stated before.

The basic concepts of Cognitive Linguistics encompass conceptual metaphor, image schemas, mental spaces, construction grammar, prototypicality and radial sets. The founding fathers of this theory are George Lakoff and Mark Johnson[16]. Basically, the theory states that there are the concrete domain of a language and an abstract concept that the concrete domain signifies. Whatever aspects one purposely emphasizes or downplays in the concrete form indicate the abstract concepts. Thus, if one states that reality is like a dance, the dance as a concrete experience that most people know means there are aspects of movement, beauty, and artistic sense in that concrete domain. Dance as such will indicate that life also has movement, beauty, and artistic dimension. Therefore, mathematical language and logic is insufficient to describe the complexities and dynamic of the abstract concepts.

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15 Dirk Geeraerts, Cognitive Linguistics: Basic Readings, Cognitive Linguistics: Basic Readings, 2008.

16 G. Lakoff and M. Johnson, "Conceptual Metaphor in Everyday Language," in Shaping Entrepreneurship Research (Eds, Saras D. Sarasvathy, Nicholas Dew, Sankaran Venkatarama) (Abingdon on the Thames: Routledge, 2020), 475–504, doi:10.4324/9781315161921-21.

The role of neutrosophic logic

Any effort to depict or map life or reality as an abstract substance needs to use real life or concrete experience to arrive at such an understanding. To choose the concrete experience and to connect it with the abstract domain, one needs intuition.

As this work emphasizes [8]: "More "right brain" activity, based on direct experiences, leads to direct experiences of the Divine. Your "inner vision" (the "mind's eye") can help readers in this, and in many other ways. The inner vision is also the seat of many of the intuitive faculties, which are experiencable facts, not imaginings. That means the information obtained by the intuitive faculty is verifiable and reproducibly observable.

In order to do that, the Balanced Brain is the most efficacious way to function, as well as the most efficient, and the most comfortable.

To obtain the Balanced Brain, the person usually needs to spend a great deal of their spare time being receptive, being the "receiver", being accepting and exploring, and not using the analytical intellect, but instead, spending time in the Now and in the Senses and Sensitivities. This is best enjoyed in Natural settings".
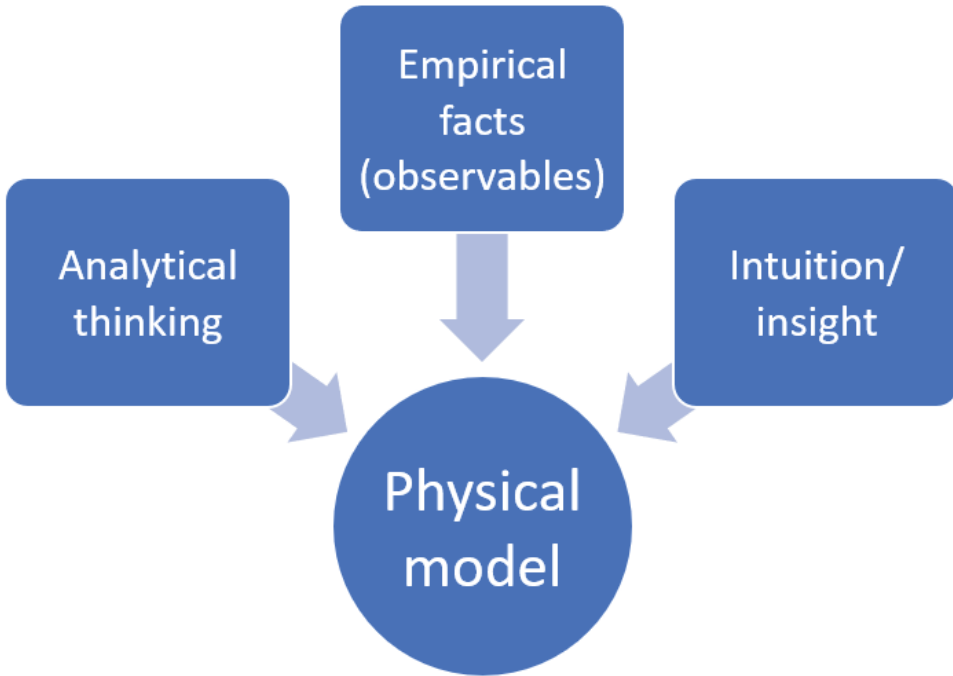
Figure 1: The role of intuition, analytical thinking, and empirical facts.

In other words, McGilchrist's theme: the Master (right brain) governs the direction, and then the logical process keeps on finding the detailed answer or path indeed sheds light to the problem that this article struggles with.

Discussion: A few implications for definition of reality and consciousness

The aforementioned explanations concern how balanced brain functions are required for a realistic mathematics and sciences (may be called "evidence-based mathematics").

Then, what is reality in this context? Yes, it seems that this is a simple question, but a complex topic to discuss. For some philosophers, there are real objects out there, but for others there are only perceived senses. Berkeley put it to the extreme that objective reality per se does

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not exist, everything can exist because of the mind which perceive it. This conviction has been put into succinct fiction story for instance by J.L. Borges, in his story: Tlon, Uqbar, Orbis Tertius[17].

From Neutrosophic Logic perspective, whenever there are two opposite stances, then one can consider a middle ground or it can be called "dynamics of neutralities". In the same way, between A= "everything are real objects" and B= "everything is perception," we can find a middle ground, i.e. reality can been viewed as perceived objects, i.e. something which does exist independent of the observer, yet it must be perceived through human senses. In this way, this article rejects Mermin's interpretation of quantum mechanics that "the moon is not there if nobody sees it".

Such a discussion on the meaning of reality seems to be put aside into obscurity by recent trend in neuroscience. For instance it is known: "Modern neuroscience research generally shies away from such discussions, concentrating on what are called the neuronal correlates of consciousness, and actually their minimal number. All available evidence implicates neocortical tissue in generating feelings. On the other hand, brain activity originates in a broad set of cortical regions (parietal, occipital and temporal regions), the socalled posterior 'hot zone'".

First of all, sensory perception needs consciousness, therefore, a rather pragmatic definition of what constitutes consciousness is needed. For instance: "The origin and nature of these experiences, sometimes referred to as qualia, have been a mystery from the earliest days of antiquity right up to the present. Many modern analytic philosophers of mind, most prominently perhaps Daniel Dennett of Tufts University, find the existence of consciousness such an intolerable affront to what they believe should be a meaningless universe of matter and the void that they declare it to be an illusion.

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17 9Jorge Luis Borges. Tlon, Uqbar, Orbis Tertius. Url: https://www.tlonprojects.org/content/6-about/_tuot-jorgeluisborges.pdf.

That is, they either deny that qualia exist or argue that they can never be meaningfully studied by science"[18].

Apart from such a qualia debate, a more "clinical" approach based on experiments has been presented as follows: "It has been speculated that frontal cortex and the extrastriate play a significant role in the expression of conscious awareness. The significance is not only because higher cognitive processing requires effective communication between frontal cortex and the posterior cortical areas that store domain specific information, but also because awareness requires construction of a multilevel symbolic interpretation of the information"[19].

Others argue that most aspects of self-awareness happens in cerebral cortex, although in some cases that may be not true: "Numerous neuroimaging studies have suggested that thinking about ourselves, recognizing images of ourselves, and reflecting on our thoughts and feelings-that is, different forms of self-awareness-all involve the cerebral cortex, the outermost, intricately wrinkled part of the brain. The fact that humans have a particularly large and wrinkly cerebral cortex relative to body size supposedly explains why we seem to be more self-aware than most other animals. But new evidence is casting doubt on this idea"[20].

However, Ortinski and Meador argue of neuronal mechanism behind self-awareness13. Other emphasizes the role of thalamus in human consciousness[21].

Last but not least, scientists from Max Planck Institute seem to figure out the seat of consciousness: "Scientists from the Max Planck Institute in Tübingen measured the activity of neurons in the

18 Christof Koch, What is consciousness. Nature, May 2018. url: https://www.nature.com/articles/d41586-018-05097-x

19 R.D. Badgaiyan. Conscious Awareness and Brain processing. Elements (Que). 2005; 3(3): 8–12. url: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3007594/

20 Ferris Jabr.Self-awareness with simple brain. Scientific American. Url: https://www.scientificamerican.com/article/self-awareness-with-a-simple-brain/

21 https://www.college-de-france.fr/media/en-stanislas-dehaene/UPL753837796513926252_Ward_4.pdf

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brains of macaques while the animals observed images on a screen. The results show that neurons in one part of the frontal lobe of the cerebral cortex are active when the monkeys are aware of what they have seen. Therefore, this region of the brain appears to play a role in deciding which impressions reach our consciousness. Thus the content of consciousness is based in two different brain regions. The decision as to which sensory impressions will reach our consciousness is not made by a single region. Instead, neurons from different regions must cooperate for this purpose. With the help of the tests on the monkeys, it is possible to establish how consciousness arises. This knowledge could benefit people with impaired consciousness in the future"[22].
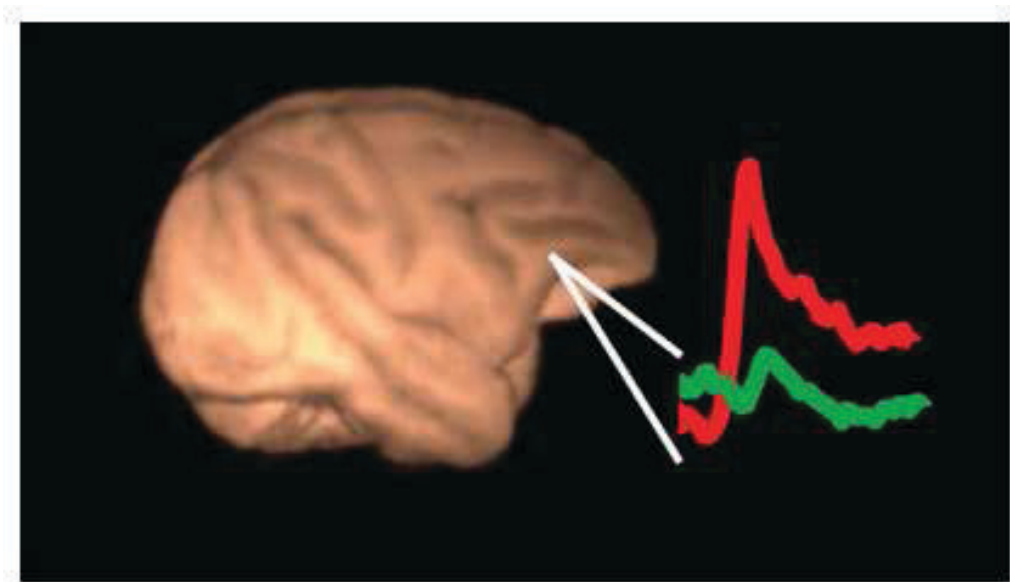
Figure 2: Neurons in the lateral prefrontal cortex represent the content of consciousness. The red trace depicts neural activity
(source: MPI for Biological Cybernetics)*.

22 Original publication: Theofanis I. Panagiotaropoulos, Gustavo Deco, Vishal Kapoor & Nikos K. Logothetis Visual Consciousness in the Lateral Prefrontal Cortex, Neuron, Volume 74, Issue 5, 924-935, June 7th, 2012, 10.1016/j.neuron. 2012.04.01313P. Ortinski & K.J. Meador. Neuronal mechanism behind self-awareness. Neurological Review, 2004. url: https://jamanetwork.com/journals/jamaneurology/fullarticle/786070
* Source: https://www.mpg.de/8425992/seat-of-consciousness; see also : https://www.mpg.de/5839948/conscious_perception

Concluding Remarks

Returning to the "Man Who Knew Infinity" movie, the lesson learned is as follow: Ramanujan led the discovery of the partition theorem, then he tried to find the proof with his logical processes. The four analyses yield a result that the rational number, symbol, or approach is insufficient by itself. Human beings need a space for intuition (something parallel to irrational numbers in the frame of Pythagorean's rationality doctrine) to pursue reality or truth without underestimating rational language contribution in mathematics or other domain of sciences. In the essence of human being lies richness and complexities that language and logics by itself cannot describe, especially by merely using rational number, symbol, or approach.

Therefore, to rectify the overemphasizing rationality in mathematics and beyond, four concepts in agreement propose a significant contribution. The McGilchrist's concept, Wittgenstein's view and the Conceptual Linguistics theory with the Neutrosophic approach recommend that a combination of both the intuitive aspect of the right hemisphere and the analytic or logical thinking processes of the left brain to create a holistic approach. The term can be: intuilytics. In other words, the Master (right brain) governs the direction, and then the logical process keeps on finding the detailed answer or paths.

Those theories implicitly signify the need of further journey to explore the essence of human beings with their brain capacities in dealing with reality that they perceive as mathematicians, philosophers, and theologians have been studying continuously.

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Review

A Review of Seven Applications of Neutrosophic Logic: In Cultural Psychology, Economics Theorizing, Conflict Resolution, Philosophy of Science, etc.

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Abstract

In this short communication, we review seven applications of NFL that we have explored in a number of papers: (1) Background: the purpose of this study is to review how neutrosophic logic can be found useful in a number

of diverse areas of interest; (2) Methods: we use logical analysis based on NL; (3) Results: some fields of study may be found elevated after analyzed by NL theory; and (4) Conclusions: we can expect NL theory to be applied in many areas of research too, in applied mathematics, economics, and physics. Hopefully the readers will find a continuing line of thoughts in our research from the last few years.

Keywords: neutrosophic logic; cultural psychology; economics; conflict resolution; philosophy of
science; cosmology

1. Introduction

First, let us discuss a commonly asked question: what is Neutrosophic Logic? Here, we offer a short answer.

Vern Poythress argues that sometimes we need a modification of the basic philosophy of mathematics, in order to re-define and redeem mathematics [1]. In this context, allow us to argue in favor of Neutrosophic logic as a starting point, in lieu of the Aristotelian logic that creates so many problems in real world.

In Neutrosophy, we can connect an idea with its opposite and with its neutral and get common parts, i.e. <A> ^ <non-A> = nonempty set. This constitutes the common part of the uncommon things! It is true/real—paradox. From neutrosophy, it all began: neutrosophic logic, neutrosophic set, neutrosophic probability, neutrosophic statistics, neutrosophic measures, neutrosophic physics, and neutrosophic algebraic structures [2].

It is true in a restricted case, i.e. Hegelian dialectics considers only the dynamics of opposites (<A> and <anti-A>), but in our everyday life, not only the opposites interact, but the neutrals < neut-A > between them too. For example, if you fight with a man (so you both are the opposites to each other), but neutral people around both of you (especially the police) interfere to reconcile both of you.

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Neutrosophy considers the dynamics of opposites and their neutrals.

So, neutrosophy means that: <A>, <anti-A> (the opposite of <A>), and < neut-A > (the neutrals between <A> and <anti-A>) interact among themselves. A neutrosophic set is characterized by a truth-membership function (T), an indeterminacy-membership function (I), and a falsity-membership function (F), where T, I, F are subsets of the unit interval [0, 1].

As particular cases we have a single-valued neutrosophic set {when T, I, F are crisp numbers in [0, 1]}, and an interval-valued neutrosophic set {when T, I, F are intervals included in [0, 1]}.

From a different perspective, we can also say that neutrosophic logic is (or "Smarandache logic") a generalization of fuzzy logic based on Neutrosophy (http://fs.unm.edu/NeutLog.txt). A proposition is t true, i indeterminate, and f false, where t, i, and f are real values from the ranges T, I, F, with no restriction on T, I, F, or the sum n = t + i + f. Neutrosophic logic thus generalizes:

- Intuitionistic logic, which supports incomplete theories (for 0 < n < 100 and i = 0, 0 < = t, i, f < = 100);
- Fuzzy logic (for n = 100 and i = 0, and 0 < = t, i, f < = 100);
- Boolean logic (for n = 100 and i = 0, with t, f either 0 or 100);
- Multi-valued logic (for 0 < = t, i, f < = 100);
- Paraconsistent logic (for n > 100 and i = 0, with both t, f < 100);
- Dialetheism, which says that some contradictions are true (for t = f = 100 and i = 0; some paradoxes can be denoted this way).

Compared with all other logics, neutrosophic logic introduces a percentage of "indeterminacy"—due to unexpected parameters hidden in some propositions. It also allows each component t, i, f to "boil over" 100 or "freeze" under 0. For example, in some tautologies t > 100, called "overtrue." Neutrosophic Set is a powerful structure

in expressing indeterminate, vague, incomplete and inconsistent information.

In this short review article, we will review seven applications of NL theory in diverse fields of science.

We introduce a number of key terms here. For example, from a NL perspective, we can find a reconciliation between "push" and "pull" type of gravitation, by considering both forces are in place. To speak more plainly, pull force takes place on an astronomical scale, while push force takes place at geological scale, and this effect can be found for instance: a. the fact that the Moon is receding from Earth (around 4 cm/yr), b. the fact that the Earth is expanding caused by dissipative geodynamics process, and c. the Pangea hypothesis.

In the context of cosmology, we argue that neutrosophic logic is in agreement with Kant and Vaas's position, it offers a resolution to the long standing disputes between beginning and eternity of the Universe. In other words, in this respect we agree with Vaas: "how a conceptual and perhaps physical solution of the temporal aspect of Immanuel Kant's "first antinomy of pure reason" is possible, i.e. how our universe in some respect could have both a beginning and an eternal existence. Therefore, paradoxically, there might have been a time before time or a beginning of time in time."

2. Seven Applications of Neutrosophic Logic in Diverse Fields of Science

2.1. Cultural Psychology

Culture is a shared meaning system, found among those who speak a particular language dialect, during a specific historic period, and in a definable geographic region. Collectivism is a cultural pattern found in most traditional societies, especially in Asia, Latin America, and Africa. It contrasts with individualism, which is a cultural pattern found mostly in America and Europe.

This theme was explored by Prof. Harry Triandis (https://www. researchgate.net/profile/Harry_Triandis). Triandis was born in Greece in 1926. During the Second World War, he learned four foreign languages and developed his curiosity about the differences that exist between cultures. His time getting to know people across various European nations inspired him to research cultural disparities in the way people think. This issue can be reconciled with the help of NL theory, which may be appropriate for socio-economics theorizing, as we will discuss in the next subsection.

2.2. Socio-Economics Theorizing [3]

In a series of papers, we outlined a more general approach to reconcile classical tensions between individualism and collectivism, between cooperation and competition, and so on. In our opinion, our tendency to cooperate or compete is partly influenced by the culture that we inherit from our ancestors. One of us (VC) once lived for a while in Russia, and he found that many people there are rather cold and distant (of course not all of them, some are warm and friendly). He learned that such a trait may be found as quite common in many countries in Europe. They tend to be individual and keep certain distance from each other. In physics term, they are like fermions. Our proposed simplistic analogy of human behaviour, i.e. individualism and collectivism, is not uncommon. (Indeed such cultural psychology research has been reported since Harry C. Triandis et al. See, for example, (a) The Self and Social Behaviour in Differing Cultural Contexts, Psychological Review, vol. 96, no. 3; (b) Harry C. Triandis and Eunkook M. Suh, Cultural Influences on Personality, Annu. Rev. Psychol. 2002. 53:133–60; (c) J. Allik and A. Realo, Individualism-collectivism and social capital, J. Cross-Cultural Psychology, Vol. 35 No. 1, January 2004, 29–49. This last mentioned paper includes a quote from Emile Durkheim: "The question that has been the starting point for our study has been that of the connection between the individual

personality and social solidarity. How does it come about that the individual, whilst becoming more autonomous, depends ever more closely upon society? How can he become at the same time more of an individual and yet more linked to society?")

There is a developmental psychology hypothesis suggesting that perhaps such a trait co-relates to the fact that many children in Europe lack nurturing and human touch from their parents in their childhood, which possibly make them rather cold and individual. Of course, whether this is true, is yet to be verified.

On the contrary, most people in Asia and Africa are gregariously groupie (except perhaps in large metropolitan areas). They tend to spend much time with family and friends, just like many Italians do. They attend religious rituals regularly or watch music festival together, and so on. In physics term, they are bosons. Of course, such a sweeping generalization may be oversimplifying. (After writing up this article, we found that Sergey Rashkovskiy also wrote on a quite similar theme, albeit with statistical mechanics in mind. The title of his recent paper is: "'Bosons' and 'fermions' in social and economic systems." Here is abstract from his paper: "We analyze social and economic systems with a hierarchical structure and show that for such systems, it is possible to construct thermostatistics, based on the intermediate Gentile statistics. We show that in social and economic hierarchical systems there are elements that obey the Fermi-Dirac statistics and can be called fermions, as well as elements that are approximately subject to Bose-Einstein statistics and can be called bosons. We derive the first and second laws of thermodynamics for the considered economic system and show that such concepts as temperature, pressure and financial potential (which is an analogue of the chemical potential in thermodynamics) that characterize the state of the economic system as a whole, can be introduced for economic systems." Url: https://arxiv.org/ftp/arxiv/papers/1805/1805.05327.pdf)

Therefore, it seems quite natural to us, that Adam Smith wrote a book on philosophy suggesting that individual achievement is the key to national welfare (because he was British and thus emphasized individualism). If only Adam Smith had been born in Bangkok or Manila, he would have probably written this book in a different way.

It was more than a hundred years before mathematicians like John F. Nash, Jr. figured out that individual pursuit towards one's own goals does not lead to achieve a common goal as a society. (For example, let us imagine 10 players of a football team try simultaneously to score a goal against the opposite team, will they succeed? Of course no, they should arrange according to their coach's instruction: 1-4-4-2, or some other type of arrangement.)

At this point, some readers may ask: which is better, to be like fermions or bosons? Our opinion is as follows: just like in particle physics, both fermions and bosons are required. In the same way, fermion behavior and boson behavior are both needed to advance quality of life. Fermion people tend to strive toward human progress, while boson people are those who enrich our life.

This issue again can be reconciled with the help of NL theory, i.e. such a human tension is always there, but there does not need to be conflicts. Similarly, from such a fermion-boson perspective (which we propose a new term: *ferson*), a classic tension between capitalism (emphasizing individual achievements) and socialism can be reconciled, for example by considering a range of possibilities, including a new term (possibly): capicialism. (This is reminiscent of a term introduced by Alvin Toffler in 70 s, in which he predicted as culture shock, that describes the combined behavior of consumerism and producers: prosumerism.)

2.3. Conflict Resolution [4]

Binary choices are another source of problems. As a one-liner joke says:

There are two kinds of people in the world: Those who think there are two kinds of people in the world and those who don't. (Plus some others who aren't sure.)

- (http://philippe.ameline.free.fr/humor/TwoKindOfPeople.htm)

A funnier joke on binary logic:

There are 10 kinds of people in the world: Those who understand binary and those who don't.

- (http://philippe.ameline.free.fr/humor/TwoKindOfPeople.htm)

As Phillipe Schweizer remarked:

> "These two possibilities, these alternatives, are the basis of cognition, and allow choice and therefore action through the fact that a preference becomes possible: either I prefer there is X, or I prefer there is no X. Then autonomy appears. And indeed the valuation or affect too: "I like" or "I don't like", and it goes with it together. The stages described here are not as distinct as those of Piaget, they overlap, include and extend. The "there is no" is opposed to the "there is" forming the opposite. Thus the binary appears and the logic of the same name also: either "there is", or "there is not": X or non-X, one and the other being mutually exclusive.
>
> . . . There is this and that and that again: a perception of the environment, a representation of a situation as a collection of objects. Our other most frequent and fundamental conception is opposition: there is or there is not. What also gives one thing and its opposite: day and night, hot and cold, big and small . . . The importance of this simplifying binary conception of two situations sliced diametrically away in opposite is the most prominent form of mental life. It is the emblematic form of a choice."

(Quote from Phillipe Schweizer. Thinking on Thinking: The Elementary forms of Mental Life Neutrosophical representation as enabling cognitive heuristics. Submitted for review.)

In this regards, one of us (FS) recently published a new book, with the following title: Neutropsychic Personality [5]. In this book, FS described possible extension of Freudian mental model: id-ego-superego, using his neutrosophic logic theory. His definition of Neutropsychic is as follows:

> "Neutropsyche is the psychological theory that studies the soul or spirit using the neutrosophy and neutrosophic theories. It is based on triadic neutrosophic psychological concepts, procedures, ideas, and theories of the form (<A>,< neut-A >,<anti-A>), such as (positive, neutral, negative), (good behavior, ignorant behavior, bad behavior), (taking the decision to act, pending, taking the decision not to act), (sensitive, moderate, insensitive), (under-reacting, normally reacting, over-reacting), (under-thinking, normal thinking, over-thinking), and so on, and their refinements as (< Aj >,< neut-Aj >,< anti-Aj >)." ((5), p.29)

Perhaps it is necessary to develop an improved model of the neutropsychic basis of decision making. Another possible way to resolve this fundamental problem of human societies, is to accept otherness (cf. Milad Hanna, [6]), without being absorbed by the otherness. In other words, we should try to find common trust, where people can engage in dialogue and reach peaceful co-existence.

While this notion of peaceful co-existence belongs to social psychology, we can also think of this problem from the mathematical perspective of Kolmogorov's principle of contradiction, as we will discuss in next subsection.

2.4. Philosophy of Science

In a book currently under preparationwith a number of contributors, there is special chapter where two authors argued on empiricism vs. logicism [7]. During the writing process of that book, a logician mathematician argues among other things: "Typical experimental physicists does not want to discuss anything out of empiricism. They

do not know the way how empiricism was developed. For them, empiricism became an absolute religion not to be questioned. As I pointed out the biggest founder of empiricism, Hume, admitted that empiricism is not just induction upon empirical data, it is standing upon some fundamentally important non-empirical truth such as mathematics." In essence, this is an old problem in theoretical physics, which is most significant: to meditate and observe, or to derive theory based on a few axioms? Perhaps the answer is not so easy to grasp, but both approaches are complementary. Such an intensity of this dialogue can be viewed as reflecting the message of this book: there are serious old problems which call for attention by modern physicists and mathematicians alike [7].

This deep problem in philosophy of science can be viewed as another case that calls for implementation of NL theory: whenever there are two opposite sides, there is always a choice to find a neutral side, in order to reconcile those two opposite sides. We can also think of them starting from the principle of contradiction, proposed by Kolmogorov (see Figure 1). To summarize, he argues that there is fundamental problem in developing complex arguments, they always lead to contradiction. This was proven later by Gödel, and it is called: Godel's incompleteness theorem.
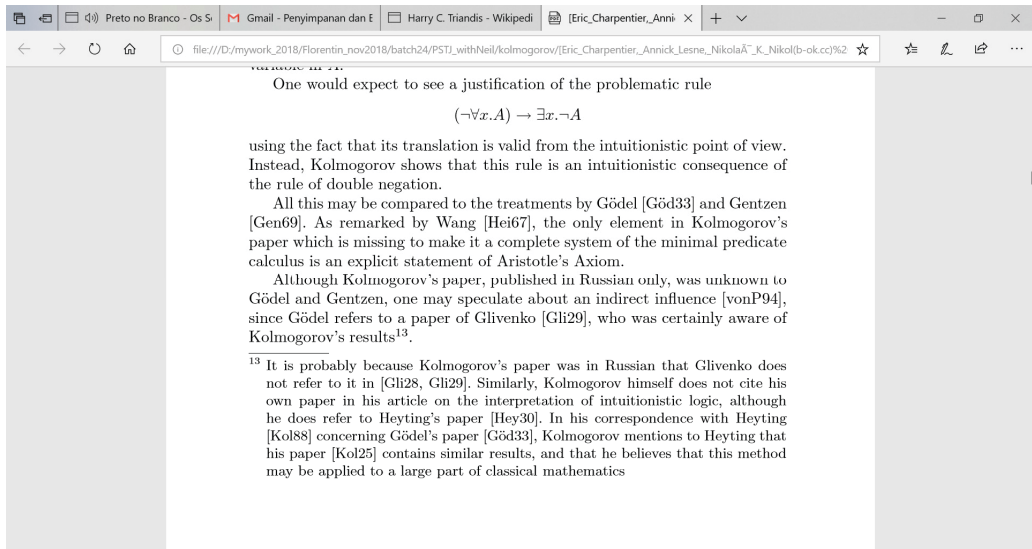
Figure 1. Kolmogorov's principle of contradiction. Source: ref. [8].

What can we conclude from Kolmogorov's principle of contradiction? It is quite simple, i.e. developing a complicated theory from a number of postulates will very likely lead to messy contradictions, which are often called "paradoxes," just like the twin paradox in general relativity, or the cat paradox in quantum wave function; see also [9,10].

To put this problem succinctly, we can paraphrase Arthur C. Clarke's famous saying: "Any sufficiently advanced technology is indistinguishable from magic," (Arthur C. Clarke, "Profiles of The Future", 1961 (Clarke's third law). url: http://www.quotationspage. com/quote/776.html) to become "**Any sufficiently complicated theory will result in a number of contradictions and paradoxes**."

Such a logical analysis derived from Kolmogorov's principle of contradiction eventually remind us of the following:

(a) To keep humble mind before Nature (God's creation), and perhaps we should not rely too much on our logic system and mathematical prowess;

(b) In developing a theory one should keep complications and abstractions to a minimum;

(c) To build theory in the nearest correspondence to the facts; it is the best if each parameter can be mapped to a measurable quantity.

We hope the above three criteria can be a useful set of practical guidelines for building mathematical models in theoretical physics or cosmology.

2.5. Cosmology [11]

Questions regarding the formation of the Universe and what was there before the existence of the Early Universe have been of great interest to mankind at all times. In recent decades, the Big Bang as described by the Lambda CDM-Standard Model Cosmology has become widely accepted by majority of physics and cosmology communities. Among other things, we can cite A.A. Grib and Pavlov who pointed out possible heavy particles creation out of vacuum and also other proposals such as *Creatio Ex-Nihilo theory* (CET).

However, philosophical problems remain, as Vaas pointed out: Did the universe have a beginning or does it exist forever, i.e. is it eternal at least in relation to the past? This fundamental question was the main topic in ancient philosophy of nature and the Middle Ages. Philosophically it was more or less banished then by Immanuel Kant's *Critique of Pure Reason*. However, it has been revived in modern physical cosmology both in the controversy between the big bang and steady state models some decades ago and in the contemporary attempts to explain the big bang within a quantum cosmological framework.

Interestingly, Vaas also noted that Immanuel Kant, in his Critique of Pure Reason (1781/1787), argued that it is possible to prove both that the world has a beginning and that it is eternal (first antinomy of pure reason, A426f/B454f). As Kant believed he could overcome

this "self-contradiction of reason" ("*Widerspruch der Vernunft mit ihr selbst*", A740) by what he called "*transcendental idealism*", the question whether the cosmos exists forever or not has almost vanished in philosophical discussions.

In a paper accepted recently by *Asia Mathematika J.*, we take a closer look at Genesis 1:2 to see whether the widely-accepted notion of *creatio ex-nihilo* is supported by Hebrew Bible or not [11].

It turns out that neutrosophic logic is in agreement with Kant and Vaas's position, it offers a resolution to the long standing disputes between beginning and eternity of the Universe. In other words, in this respect we agree with Vaas: "how a conceptual and perhaps physical solution of the temporal aspect of Immanuel Kant's "*first antinomy of pure reason*" is possible, i.e. how our universe in some respect could have both a beginning and an eternal existence. Therefore, paradoxically, there might have been a time before time or a beginning of time in time."

Summarizing, neutrosophic logic studies the dynamics of opposites and neutralities; from this viewpoint, we can understand that it is indeed a real possibility that the Universe had both initial start but with eternal background (that may be called "primordial fluid"). This is exactly the picture we got after our closer look at Gen. 1:1-2.

2.6. American Football Game

(This section is after discussion with Robert Neil Boyd.)

Let us look at a situation in a football game (American style football).

The offense and the defense are lined up. The offense is in range to try kick a field goal to score 3 points. When the ball is passed from the center to the holder, so that the kicker may try to kick it through the upright poles that are the goal posts, many different things may happen. This is not a simple situation of the ball going between the

uprights or not. The defense may be able to get a man in position to block the kick.

If the kick is blocked, according to the rules, the defense may pick up the ball and carry it towards their side of the field. If the man who picked up the ball and ran with it, is not tackled to the ground before he crosses the goal line, the play results in a touchdown, a 6 point score for the defending players.

Or the player who picked up the ball after the kick attempt was blocked runs several yards towards his goal line, where he is tackled by one of the members of the kicking team, which causes him to lose the ball he was carrying. The kicking team recovers the fumble and the play is over.

Or the holder fails to catch the pass from the center, or the holder may drop the pass from center and either pick it up and run with it, or drops it to the ground before he can do anything, or the pass may sail over the head of everyone (whereupon, many things are possible), or the holder may fail to place the ball properly for the kicker, resulting in a failed attempt.

Or the defense may commit one of several possible rule infractions before, or during the kick, so that the result of the play is a penalty against the defending team. If the penalty is large enough, it can result in a new set of downs for the kicking team, so the place-kicker leaves the field so that the normal offense players can take 4 more tries to gain 10 yards.

Or there can be a penalty against the kicking team that may result in the kicking team being forced out of range to try the kick. So the kicker leaves the field without attempting to kick a field goal.

Or the offensive team has the ball lined up to try and score. When the ball is passed to the holder, it is a fake kick and the holder runs for a first down or a touch down or passes the ball to an offensive player for a first down or passes the ball and it is not caught, which

means the defense obtains the ball at the spot where the ball was placed before the kick attempt.

Or the kicker attempts to kick the ball through the uprights and succeeds, scoring 3 points for his team.

The kicker can get the snap directly from the center and try to make a pass completion, or he can run while carrying the ball, which can result in interception or fumbling or touchdown or first down, or the kicker being tackled before he reaches the line. Or he completes a pass and the receiver makes a first down or a touch down or get tackled to the ground before the line to gain, or the receiver fumbles the ball as he is tackled, leading to a potential touchdown for the other team. Many additional possibilities exist, but most of them are very rare.

During any play in a football game, it is possible for any player on either team to score a touchdown for and gain 6 points for their team. This is possible because human beings are interacting in a game played with goals and goal lines and an oddly shaped biconvex bi-conical ball inflated with high pressure air that is surrounded by a rubber sack that is surrounded by a leather case which is held in place with stitches and laces. The shape of the ball causes it to bounce in unpredictable ways when it is dropped or kicked or thrown. In addition, hot temperatures make the ball softer and cold temperatures make the ball harder. Both of the factors cause the ball to behave in different ways. When the ball is harder, it is like kicking a rock. When the ball is harder, it becomes more slippery so it is harder to throw and harder to catch, and it hits you harder when you catch it.

So a field goal attempt does not merely involve two possibilities, but an almost infinite variety of events may happen, before the attempt, during the attempt, or after the attempt.

Neutrosophic logic may be expanded to more than three possible states, since in an infinite universe, an infinite number of things may

happen. I understand the tri-state basis of it as being valuable in many circumstances. There should be ways to extend the logic into larger numbers of choices, so that there is a range of yesses, to 1000 kinds of maybes or almosts, or something elses, or something unexpected that was outside the starting point of the data set, and so on, to the No of the equation. The null-A of non-Aristotelian logic, which is what Neutrosophic logic is, can involve much more than just the simplistic null set.

Question: How to extend the center, null-A state, to provide for abnormalities or exigencies?

Right now, the easiest thing to do seems to be to widen the null state to include all the possibilities that are additional to, or contingent on one or more rules, internal to the null state. So now the null state becomes much broader, and able to handle much more complicated situations, such as a field goal attempt during an American football game.

It seems that the "expanded middle" would be a good option for problem structure in Neutrosophy.

2.7. Gravitation

Despite majority of physical theories of gravitation assuming it is a pull force, a number of researchers have begun to work out a push gravity, which is known as Le Sage/Laplace gravitation theory. An interesting remark on impetus to Le Sage gravitation theory can be found in article by the late Prof. Halton Arp on his work with Narlikar:

> "Nevertheless the ball had started rolling down hill so to speak and in 1991, with Narlikar's help, I outlined in Apeiron the way in which particle masses growing with time would account for the array of accumulated extragalactic paradoxes. Later Narlikar and Arp (1993) published in the Astrophysical Journal Narlikar's original, 1977 solution of the basic dynamical equations along with the Apeiron applications to the quasar/galaxy observations.

. . .

> The first insight came when I realized that the Friedmann solution of 1922 was based on the assumption that the masses of elementary particles were always and forever constant, m = const. He had made an approximation in a differential equation and then solved it. This is an error in mathematical procedure. What Narlikar had done was solve the equations for m = f(x, t). This a more general solution, what Tom Phipps calls a covering theory.

. . .

> But Narlikar had overwhelmed me with the beauty of the variable mass solution by showing how the local dynamics could be recovered by the simple conformal transformation from t time (universal) to what we called t time (our galaxy) time. The advertisement here was that our solution inherited all the physics triumphs much heralded in general relativity but also accounted for the non-local phenomena like quasar and extragalactic redshifts." (12)

Therefore, there are many reasons to support Le Sage gravity, despite majority of physicists preferring Einsteinian view. Summarizing, there should be a hidden dynamical matter creation process, suggesting that Newton second law was actually not just F = ma, but it should be written in complete form: F = d[mv]/dt = m[dv/dt] + v[dm/dt], therefore there is matter creation term. (In fact, it is known that Newton's second law was written originally as the momentum change over time, that is Fg = dp/dt.) All physics of Earth etc. assumes the Earth is static, but actually it is increasing in size and mass. This approach has been explored by both of us and also Robert Neil Boyd in a number of papers, see for instance [13,14].

Moreover, from a NL perspective, we can find a reconciliation between "push" and "pull" type of gravitation, by considering both forces are in place. To speak more plainly, pull force takes place at

astronomical scale, while push force takes place at geological scale, and this effect can be found for instance: a. the fact that the Moon is receding from Earth (at a constant rate of around 4 cm/yr), b. the fact that the Earth is expanding, caused by dissipative geodynamics process, c. Pangea hypothesis.

We will present our result in a paper to be presented in forth coming 5th *EuroSciCon* 2019. Allow us to introduce another new term in order to reconcile push and pull gravitational force, pullsh force. Such an idea is presently under investigation.

3. Results

Some fields of science are improved by being analyzed by NL theory; therefore we can expect NL theory will be applied in many areas of research too, in applied mathematics, economics, and also physics. For example, we also explored on how NL theory may be used to reconcile the "push" and "pull" gravitation theories. This is still a preliminary exploration, so we include this topic in discussion section.

In the context of cosmology, we argued that neutrosophic logic is in agreement with Kant and Vaas's position, it offers a resolution to the long standing disputes between beginning and eternity of the Universe. In other words, in this respect we agree with Vaas: "how a conceptual and perhaps physical solution of the temporal aspect of Immanuel Kant's "first antinomy of pure reason" is possible, i.e. how our universe in some respect could have both a beginning and an eternal existence. Therefore, paradoxically, there might have been a time before time or a beginning of time in time."

4. Discussion

We have discussed among other things, a few applications of NL theory in a number of fields, such as cultural psychology and economics theory. The essence of our discussion is that NL allows

one to study the dynamics of opposites and neutralities. It is a generalization of dialectics.

Moreover, from a NL perspective, we can find a reconciliation between "push" and "pull" type of gravitation, by considering both forces are in place. To speak more plainly, pull force takes place at astronomical scale, while push force takes place at geological scale, and this effect can be found for instance: a. the fact that the Moon is receding from Earth (at a constant rate of around 4 cm/yr), b. the fact that the Earth is expanding, caused by dissipative geodynamics process, c. Pangea hypothesis.

We will present our result in a paper to be presented in forthcoming 5th *EuroSciCon* 2019. Such an idea will be investigated later on.

We hope these discussions will be found useful in other areas as well; for instance in international relations and peace keeping efforts.

5. Conclusions

In this short article, we review seven applications of NFL that we have explored in a number of papers. Hopefully the readers will find a continuing line of thoughts in our research in the last few years, emphasizing our improved understanding of various branches of human knowledge. All of these branches have been enhanced and elevated to a higher level through applications of NL theory.

To summarize our results: we introduced a number of key terms here. For example, from a NL perspective, we can find a reconciliation between "push" and "pull" types of gravitation, by considering both forces. To speak more plainly, pull force takes place at astronomical scale, while push force takes place at geological scale, and this effect can be found for instance: a. the fact that the Moon is receding from Earth (at a constant rate of around 4 cm/yr), b. the fact that the Earth is expanding, caused by dissipative geodynamics process, c. Pangea hypothesis.

In the context of cosmology, we argue that neutrosophic logic is in agreement with Kant and Vaas's position; it offers a resolution to long-standing dispute between the beginning and the eternity of the Universe. In other words, in this respect we agree with Vaas: "how a conceptual and perhaps physical solution of the temporal aspect of Immanuel Kant's "*first antinomy of pure reason*" is possible, i.e. how our universe in some respect could have both a beginning and an eternal existence. Therefore, paradoxically, *there might have been a time before time or a beginning of time in time*."

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Review

Wireless Technologies (4G, 5G) Are Very Harmful to Human Health and Environment: A Preliminary Review

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Abstract

The intent of this article is to show that wireless technology is, without remedy other than termination, one of the most devastating environmental and health threats and threats to personal liberty ever created. It is becoming widely known that 4G and 5G technologies cause many harms to human health. Cancer is only one problem, and one that is easily solved. 4G and 5G cause 720! (factorial) different maladies in human beings, and can kill everything that lives but some forms of micro organisms. Some pathogens and certain parasites are made more virulent by selected frequencies of RF. Insects and birds are already being killed by the RF broadcasts. The broadcasts can be controlled to give selected individuals selected maladies. All this needs to be stopped. There are other ways to communicate that do not require radio waves, nor wires, which cause no damage to any form of life. We need to make those methods available to the public, while all the RF systems are being phased out.

Introduction

So many people are more and more accustomed to a wide variety of wireless technologies.

However, allow us to argue on 4 reasons why wireless technologies should be stopped:
- Wireless technologies disrupt family relations
- Wireless technologies induce 720! Different maladies, cancer included
- Wireless technologies steal privacy from everyone using those technologies

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It is becoming widely known that 4G and 5G technologies cause many harms to human health. Cancer is only one problem, and one that is easily solved. 4G and 5G cause 720! (factorial) different maladies in human beings, and can kill everything that lives but some forms of micro organisms. Some pathogens and certain parasites are made more virulent by selected frequencies of RF. Insects and birds are already being killed by the RF broadcasts. The broadcasts can be controlled to give selected individuals selected maladies. All this needs to be stopped. There are other ways to communicate that do not require radio waves, nor wires, which cause no damage to any form of life. We need to make those methods available to the public, while all the RF systems are being phased out.

Figure 01: Illustration, after Peter Tocci [1]

Potential Harmful Effects of Wireless Technology to Human Bodies, Carcinogenic Etc

According to Peter Tocci:[1] "By all appearance, world governments, world organizations such as the WHO and UN, and international agencies—even the supposedly independent

International Commission on Non-Ionizing Radiation Protection (ICNIRP), which issued draft guidelines on 7/11/18 for exposure to electromagnetic fields (100 kHz to 300 GHz)—knowingly participate in a dangerous deception based on scientific fraud: The arbitrary presumption and single-minded assertion as an operating principle that the only potential danger from ICMR is tissue heating. Included is the extreme effect, 'electro-stimulation,' comprising shocks and burns.

As of this writing (December 2018), worldwide telecom exposure limits are based on the stultified parameter of tissue heating/electrostimulation."

Furthermore, Tocci also wrote:[1]"Also, it's not unusual to see argument to the effect that, "Some studies show harm, some don't," with the implication or assertion that wireless should continue, because the latter 'cancels out' the former, or makes the situation 'inconclusive.' This conflates scientific principles and 'legal-speak.'

'Weight–of–evidence' is foreign to science, and such rationalization is used for deception or out of ignorance."However, there was a testimony in Toronto, several years ago. From a presentation given at the Toronto Whole Life Expo 2009 by Andrew Michrowski, PhD: [1] see also [2] "It is not generally appreciated that the advanced nature of wireless gadgets being currently marketed is founded on devices that have been around since the 1940s. … Precise, quality, straightforward medical and scientific research since 1950s details radiofrequency and microwave effects – without influence of stocks, PR and lawyers. By 1970s, electromagnetic, electrochemical, cascade effect equations were well defined for tissues, cells, intracellular & extracellular fluids and macromolecular effects on living systems…

Analysis of 1950-1974 mortality of 40,000 Korean War veterans shows that microwave exposure effect is cumulative [emphasis added] it affects all deaths … doubling to tripling cancers of eye, brain and central nervous system, lymphatic and hematopoietic [blood-cell/

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platelet-forming] and digestive systems. This means that even 'weak' and short exposures from wireless systems accumulate over the years and decades to engender serious diseases [emphasis added].…[a] flow chart prepared [by] the National Research Council of Canada Control

Systems Laboratory in 1973 [indicated] 22 non-thermal effects documented and generally understood by the scientific community more than 30 [40] years ago. Now, scientists daring to describe a part of such phenomena risk their career and income."Corroborating Michrowski, Trower asserts that the dangers were fully known by mid-1970. A big reason, he says, is that telecom microwave technology was not originally developed for telecom, but, among other things, as a military stealth weapon for inducing illness.[1] Trower presents proof that Government knew of the follicle-DNA threat before promoting WiFi in schools. In 20 to 25 years (2038-2043), we could easily have a generation with a high percentage of genetically damaged kids [1].

Moreover, in a 3/17/15 phone conversation, Dr. Carlo shared with me his understanding about no-safe-dose, which arose from his WTR experience: Information (data) 'riding' on the microwave 'carrier' frequencies (called modulation) manifests as pulses. These must exist at all power levels to transmit any data. They are sensed by cell membranes. Carlo said that because cells don't recognize the stimulus, pulses provoke, for one thing, a defensive and pathogenic membrane response: Transport channel shutdown, preventing exchange between cell and extracellular medium. It also interrupts intercellular communication, a very serious consequence.[4]"… pulsed EMFs are, in most cases, much more biologically active than are non-pulsed (often called continuous wave) EMFs." – Professor Martin Pall, PhD (Page 45, Chapter 6, first par.). See [3] According to Peter Tocci, known ICMR effects include endocrine disruption (host of illnesses), breakdown of blood-brain barrier, DNA strand breaks, inhibition of DNA repair, reproductive problems, autism, Alzheimer's – and many more. Though not to be dismissed, cancer,

the 'popular' concern, is actually a lesser one in the panoply of effects – as in, ecocide and eventual termination of reproduction [5].

Possible Solutions

Other than RF wireless technologies, which were actually a forbidden weapon grade method by international treaties, we can come up with alternative methods based on known electromagnetic theories.

We suppose we can give information regarding one of 3 ways to accomplish new communications technologies that do not require wires, nor RF. The first one, one of us (RNB) already gave to the US government. That involves modulation of curl-free (CF) magnetic field lines which go in a line to infinity and penetrate all intervening matter. Detection of CF information is accomplished by Josephson-Atto-Weber switches (JAWS) which require cryogenic temperatures to operate properly. CF communications are exceedingly directional.

Any lack of accuracy between sending and receiving the CF line results in no information transfer. There is the advantage that CF communications exhibit faster than light propagation. However, these devices are not suited for use by the general public. The other two methods, we are going to contemplate giving out. Maybe writing a paper would be a better way, because we can at least get credit for the idea and establish prior claim for legal purposes. In a separate article, we describe basic principle of superluminal wave, that is quantum communication, as an alternative to RF based wireless communication technology.[7] This communications method can provide an infinite number of infinite bandwidth communications channels for each user. Communication using this method travels much faster than light. It does not use radio waves and does not need wires. It cannot be monitored nor tracked nor interfered with. It cannot be regulated due to the infinities involved, and due to the fact that it is unmonitorable.

Each user benefits personally from the perfect information security provided by quantum communications. Quantum communications

does not harm any form of life, nor the environment, in any way, as quantum events are, and always have been, constantly a part of the Natural Environment

Concluding Remarks

The intent of this article is to show that wireless technology is, without remedy other than termination, one of the most devastating environmental and health threats—and threats to personal liberty—ever created. It is becoming widely known that 4G and 5G technologies cause many harms to human health. Cancer is only one problem, and one that is easily solved. 4G and 5G cause 720! (Factorial) different maladies in human beings and can kill everything that lives but some forms of micro organisms. According to Peter Tocci, known ICMR effects include endocrine disruption (host of illnesses), breakdown of blood-brain barrier, DNA strand breaks, inhibition of DNA repair, sperm damage, reproductive problems, autism, Alzheimer's – and many more. Though not to be dismissed, cancer, the 'popular' concern, is actually a lesser one in the panoply of effects – as in, ecocide and eventual termination of reproduction.[6] All this needs to be stopped.

There are other ways to communicate that do not require radio waves, nor wires, which cause no damage to any form of life. We need to make those methods available to the public, while all the RF systems are being phased out.

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Review Article

Magnificent Seven: Review of Seven Advanced Methods to Reduce Impacts of 5G Harmful Radiations to Human Health and Environment

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Abstract

As more and more reports coming out to find the hidden connection between 5G radiation and inducement of covid virus in human cells (M. Fioranelli et al., 20201, and also recent B. Rubik & R. Brown, 20212), there is urgent need to find ways to reduce the impacts of 5G harmful radiation. Even reputable journals such as Nature also publish a new article on potential use of metamaterial. This short literature review is intended to consider seven alternative methods to reduce impacts of 5G harmful radiation.

Keywords: technology impacts to society, 5G network, 5G harmful radiation, shielding devices, EMF

Introduction

It is becoming more known to learned public, that 5G networks exhibit far more greater harmful radiation to humans and also environment, than what are admitted in public (Bray & Fancy, 2021).

The most dangerous side of the worldwide plan to rushing implement 5G networks is that antennae etc. will come to our streets without notice, and even without proper consent by the public in general (referring to Nuremberg code, cf. Christianto 2021).

Considering extensive security issues related to these 5G network, and also what was the actual history of the Internet, we can ask: where are we actually heading? (CISA, 2019; Levine, 2018). This is not to mention how the Internet also gives impact to our brain functioning (Carr, 2010).

Why do we need to be cautious?

To begin with, according to Eric Windheim, there are 4 types of EMF: Electric Fields, Magnetic Fields, Dirty Electricity, Wireless Radiation. They can cause discomfort, impairment, injury, sickness or death (it has been known even since 70s after Naval study report).

Ask yourself: Do you feel better away from your house and worse inside? (Windheim, unknown date). But 5G radiation is much more

harmful than previous EMF radiation damages; all citizens all over the world shall know the following: i.e. 5G network is based on 60 GHz frequency. 60 GHz is a resonance frequency for oxygen. This disrupts the oxygen transport on hemoglobin and clots the blood. People suffocate and go into shock when the focused beam hits them. However, 60 GHz is also created as a harmonic of integer partial frequencies. These are military weapons, they are crimes against humanity (see Levine, 2018).

It shall be shut down and people will enjoy surfing faster. An apocalypse if it succeeds. it will not succeed, people will remove the antennas if they notice the effect they have. (see also Nasim, 2019).

See some figures below:

Figure 1: How 5G network will be implemented to cover all the Earth surface.

Figure 2: Example of 5G antennae in dust-bin cover (Auckland).

Links hinten auf der anderen Straßenseite steht der korrespondierende Pfosten - ebenfalls ohne Funktion außer getarnte Antenne zu sein.

Figure 3: Example of 5G pole in Germany (source: a friend in Germany).

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Figure 4: Example of 5G antennae in Germany (source: a friend in Germany).

Therefore we need to educate general public to protect and shield their beloved ones from the hazard of 5G antennae and harmful radiation. The followings are introductory reviews of some advanced methods available in literature.

Metamaterials

Ramachandran et al. discuss certain materials. They wrote: "This review intends to exhibit the practicality of metamaterial application in assimilation decrease of 5G electromagnetic (EM) energy in the human head tissue. From an overall perspective, the radio recurrence (RF) energy that got by remote cell phone from the base station, will radiate to encompassing when the gadgets are in dynamic mode. Since the most recent fifth era innovation standard for cell networks has arrived, the discharge of radiation from any

remote gadgets should be thought about. This motivation helps to prepare this paper that focuses on construction of novel and compact squareshaped metamaterial (SM) design to reduce electromagnetic exposureto humans. The commercially available substrate material known as FR-4 with thickness of 1.6 mmwas selected to place the metamaterial design on it. The electromagnetic properties and Specific Absorption Rate (SAR) analyses were carried out numerically by utilizing highperformance 3D EManalysis, Computer Simulation Technology Studio (CST) software. In the interim, for the approval reason, the metamaterial plans for both unit and cluster cells were created to gauge the electromagnetic properties of the material. … By and large, our outcomes show solid SAR decrease impacts, and the proposed SM configuration might be viewed as a promising viewpoint in the telecom field." (Ramachandran et al. 2021).

This new method may be useful for implementation in the near future.

Thermal Radiation Mode

Another possibility is thermal radiation mode, see for instance H. Kour et al. (2015). Their abstract goes as follows:

"With the enormous expansion in the prevalence of cell phones and portable information applications requesting transfer speed requiring information paces of the request of Gb/s, exploration of untappedfrequency spectrum such as mmWave has begun. Along withproviding seamless connectivity and catering to achieving high QoSand QoE, investigations are ongoing to enhance our knowledge aboutthe biological safety at high frequencies. There is a need to guarantee security and unwavering quality for the uncovered public and refreshing the public authority approaches with respect to wellbeing norms and guidelines. This article is blessed to give an understanding into wellbeing impacts relating to mm Wave frequencies, tending to angles, for example, warm warming in the body tissues with temperature rise, explicit ingestion rate (SAR), power

thickness. As an answer a proposition has been given for EM (Electromagnetic) radiation decrease for the versatile correspondence framework in the form of a proposed mode i.e. "*Thermal Radiation*" (TR) mode endorsing its safe use, advancing Green WCN alongside expanded energy effectiveness and diminished intricacy for the people in the future to come. The proposition additionally approves diminished power thickness, SAR and temperature height delivered in the human tissue when contrasted with different models as reenactment results got. It can build the security and dependability of 5G and past for example 6G organizations in future." (3)

This thermal radiation mode seems quite worthy to be tested, provided it can reduce the level of harmful radiation to human health and environment.

Eco-Enzyme

Another possible method for radiation reduction with low-tech approach is by using eco-enzyme, an ecology-friendly solution which can be defined as follows:

"Eco-enzyme is an intricate dim earthy colored shading arrangement created by maturation of natural products squander. It has solid prepared matured aroma because of citrus natural product strips. Eco protein created utilizing organic product strips, water and earthy colored sugar in a proportion 3:10:1. After incubation the filtrate was obtained, we found Flavonoids, Alkaloids, Quinones, Saponins as presence of different metabolites. Its IR spectra showed presence of -OH, COOH group. Also, Amylase, protease and lipasewere found in the filtrate." (Vama & Cherekar, 2020).

The essence of this method can be quite simple to follow: put 1-3 litres of eco-enzyme liquid in every room at your house, so it can yield some kind of protection to damages of 5G.

However, at this time, we don't find yet experimental measurements on what percentage of radiation reduction will be achieved with this

method, although some presentations including by key inventor of eco-enzyme indicate that such a reduction is possible. It would need simple experiments to find out how effective is the method for reducing 5G radiation damages effect using ecoenzyme.

Rife Frequency/528 HZ

Another possible way, albeit a bit sound unorthodox for some readers, is by turning on software to generate Rife frequency.

Basic principles, which can be paraphrased as follows:

> According to Meessen: "Infections and different organisms can be inactivated in a specific manner by exposing them to a wavering electric field of sufficient recurrence. R. Rife found this strategy currently around 100 years prior. He demonstrated its productivity through high goal magnifying instruments and in 1934, by controlled clinically tests. In any case, these outcomes appeared to be unimaginable, since the fundamental component was not yet perceived. Actually, we are faced with three problems: 1) the functioning of Rife's supermicroscopes, 2) his observation that bacteria can undergo size reduction, and 3) the decisive resonance phenomenon. We clarify the high amplification and settling force of Rife's magnifying instruments and show that new disclosures affirm that the hypothesize of constant types of microscopic organisms must be deserted. Then, at that point, we demonstrate that constrained motions of infection spikes lead to an impossible to miss reverberation, due to nonlinear impacts." (Meessen, 2020).

See also compilation of materials by Rife et al. (Holman & Paul, 2006). With regards to Rife frequency generator, there are several softwares already available publicly as listed below. But it is likely that the readers will find best effect by turning off cellular phones (playing the software at your PC).

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Examples of Rife frequency generator softwares

App

https://napkforpc.com/apk/com.rifeapp. rifeapp/

Software

https://softfamous.com/rife-generator/

https://cheffasr351.weebly.com/rifefrequencies-program-software-freedownload.html

https://rifegenerator. soft112.com/download.html

https://solfeggio-rife-frequencygenerator.soft112.com/

https://down10.software/download-rifegenerator/

http://rife.softwaresea.com/Windowssoftware-download/rife-generator

However, at this time, we don't find yet experimental measurements on what percentage of radiation reduction will be achieved with this method, therefore this method should be used cautiously.

Faraday Cage

Faraday cage is another choice as EMF shielding. In their report, Lennox-Steele & Nisbet (2016) wrote as follows: "A Faraday pack is intended to safeguard a cell phone or little computerized gadget from radio waves entering the sack and arriving at the gadget, or to stop radio waves getting away through the sack from the gadget.

The adequacy of these safeguards is imperative for security experts and legal specialists who hold onto gadgets and wish to guarantee that their substance are not perused, adjusted or erased before a measurable assessment.

This examination tests the adequacy of a few promptly accessible Faraday packs. The Faraday packs tried are largely accessible through internet based means and guarantee total obstructing of all signs through the sack."

From their report, it is clear that several Faraday cage products in market are not as effective as the vendors say. So, we will discuss two more alternatives beyond Faraday cage.

Puharich's EMF Shield

Another possible way, has been proposed by inventor A. Puharich. First, let us point out that Stan Meyer's invention of water for fuel (or in more popular term: "watercar") is one of masterpiece of such inventions. But it is less known that Meyer's design was more likely influenced by A. Puharich, who obtained patent for water-electrolysis just before Meyer began his experiments.

Another Puharich's technical design is intended for EMF shielding. As we know, one of grave dangers that we face today is that 5G wireless technologies cannot be stopped. Therefore, perhaps the only thing that we can do is (ideally) to equip and teach practical engineers (and amateurs alike) to learn how to build themselves their EMF shielding devices.

Actually, Puharich device is also a version of Faraday cage. According to Charles Tart:

> "Puharich's Faraday confine put on glass blocks, which are amazingly successful electrical separators. Normally, Faraday confines are for all time electrically associated with the earth (grounded) by a solitary, substantial measure wire running from one comer of the enclosure to a metal stake crashed profound into electrically conductive soil. This is a significant wellbeing thought if electrical cables run into the enclosure. Puharich utilized a few varieties of association with the earth, three of which are important to us here." (Tart, 1988).

Other Vendors

Last but not least, in this section allow me to tell a discussion via email with a senior physicist fellow, Robert N. Boyd, PhD, from Princeton Biotechnology Corp., New Jersey. Several months ago, I asked him, what is his opinion: "Is there a protecting device which makes it possible for us to Shield against 5G harmful effects?"

His response is based on his actual experiences with several different devices, as follows:

> "5G cannot be shielded. The only way to escape it is to dig a hole into the earth, with no openings, however small, to the above ground world, and live in there. You have to get a few feet down to escape the lethal hazards caused by microwaves. There are several devices that can mitigate a few of the damages, but given 1200 factorial damage modalities, they are all insufficient. The only and best answer is to make portable microwave communications devices and cell towers illegal.

(They already were 30 and 40 years ago. The FCC was actually a government agency back then. Now the former "FCC" is owned and operated by Time-Warner and Comcast. They call all the shots to make more profits for their companies. They are opposed even hearing about microwave damages to humans and other life-forms. They could care less. They just want the money.)

I have found 3 more technologies that are immediately noticeable and provide some protections from some microwave damage vectors. I found this one in a paper about protection from EMF:

https://www.safespaceprotection.com/product/vitaplex-pendant-necklacebracelet/

The above holographic device really helps a lot. You can feel the benefits as soon as you put it on. I have kept an older model of their

room-balancing holographic devices for 20 years, because it works and it helps my personal environment.

https://www.amazon.com/Biofield-Balance-Bracelet-Effective-Eliminating/dp/B086W2DKK9/ref=sr_1_1?dchild=1&keywords=The+Wellness+Factor&qid=1625427666&sr=8-1

The above device removes thetendency of the blood cells to clump together and restores ones physical balance from vertigo effects caused by microwaves, among many other benefits http://wellnesspendant.net/ get both the "Ground" and the "Flow" pendants. They are very information-active. These are all relatively cheap.

There are several more devices I have seen, but have not purchased yet to try them out. The above list is the best I have found at a reasonable price. ..."

Hopefully the above reply from an expert colleague in biophysics will be found useful for readers.

What More Can We Do Against 5G Tower Massive Implementation?

In previous sections, we have outlined 7 methods to protect you and your family against 5G harmful radiation. Although this topic of 5G harmful radiation has been a subject of hot debates, in recent years even mainstream science channel have begun to acknowledge 5G adverse health effects (Moskowitz, 2019; interested readers may compare with Canada Govt.'s official page).

At this point, some readers may ask: so, what more can we do in our local society against such 5G Cell Towers massive implementation?

Today, I received interesting news from Environmental Health Trust newsletter, which can be paraphrased as follows:

> "Mother Courtney Gilardi has been energetically attempting to advocate for a protected climate. On the primary day of the pandemic lockdown in 2020, a tractor came moving

down her peaceful road in Pittsfield, Mass., to obvious land for the establishment of a cell tower near her family home. Notwithstanding endeavors to keep the pinnacle from being raised, it went up and was turned on. Courtney's family and many neighbors announced impacts right away. Courtney has worked energetically with her neighbors to advocate for more mindful arrangements for cell towers. EHT's Theodora Scarato made an association with Courtney Gilardi in 2020 and has worked as a team with different specialists and associations to help Courtney's endeavors to bring issues to light locally. EHT introduced on U.S. cell tower strategy to Pittsfield authorities, shared logical assets and talked with Courtney in a digital broadcast to motivate others working for wellbeing in their networks. Because of the staggering endeavors of Courtney and her local area, the issue has been more than once highlighted in press, and on TV. Her call for responsibility has instructed chosen authorities in a significant manner. Not exclusively did the Pittsfield Board of Health have a show highlighting various EMF specialists, however moreover, the Board casted a ballot for supporting a bill to concentrate on cell tower radiation impacts." (EHT newsletter, 1st Dec. 2021)

EHT works each day to assist families with halting the foolish arrangement of cell towers by pushing for significant strategy change and genuine insurances at the nearby, state and government level.

Conclusion

In this short literature survey, we consider several plausible methods which can be useful to reduce the impacts of plenty kind of 5G harmful radiations to human health and environment.

Nonetheless, this review is by no means complete. It would need more in-depth experiments to find out how effective are these seven methods for reducing 5G radiation damages effects.

Hopefully the above review along with reply from an expert colleague in biophysics will be found useful for readers.

Acknowledgement

This writer wishes to extend gratitude to Robert N. Boyd, PhD, for many insights and discussions. Special thanks also go to Prof. F. Smarandache & Prof. The Houw Liong.

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Original Article

A Thousand Words:
How Shannon Entropy Perspective Provides Link Between Exponential Data Growth, Average Temperature of Earth and Declining Earth Magnetic Field

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Abstract

The sunspot data seems to indicate that the Sun is likely to enter Maunder Minimum, then it will mean that low Sun activity may cause low temperature

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in Earth. If this happens then it will cause a phenomenon which is called by some climatology experts as "The Little Ice Age" for the next 20-30 years, starting from the next few years. Therefore, the Earth climate in the coming years tend to be cooler than before. This phenomenon then causes us to ask: what can we do as human being in Earth to postpone or avoid the worsening situation in terms of Earth cooling temperature in the coming years? We think this is a more pressing problem for the real and present danger that we are facing in the Earth. What we are suggesting in this paper is that perhaps it is possible to model Sun-Earth interaction in terms of Shannon entropy. Since Shannon entropy can be expressed as bits of information, then it would mean that perhaps we can do something with Earth temperature by controlling the amount of information transfer and storage in the Earth. This proposal is somewhat in resemblance with message of a 2012 movie "A Thousand words" where we shall strive to love our neighbours and nature, instead of being absorbed in a culture of less-meaningful fast-talk (starred by Eddie Murphy).

1. Introduction

The historical recognition that the Sun warms the Earth has suggested a direct connection between the average global temperature and solar activity. Consequently, any significant changes in solar activity should result in equivalent changes in the Earth's global temperature. The literature on the solar influence on the Earth's temperature is quite extensive, indicating the importance of the problem [5].

In this regards, it is very important to note here that some reports made by climate experts have indicated that it is highly likely that the Sun will enter into a Maunder minimum in thenext couple years, which will last for 20-30 years to come. Since the Sun activity highly affects Earth temperature, then it can be expected that the Earth will experience cooling, which some climatologists refer to as the Little Ice Age. This global cooling can be observed in recent extreme climate

conditions such as snow storms in some regions in USA in January-February 2014 and also during this winter (January 2015). Other indication includes the fact that the Arctic Ice has increased 29% in size from 2012-2013, which indicates the coming of "global cooling" [9].

Such a global cooling phenomenon has been related to low solar activity, as reported by Mr. John Casey (www.spaceandscience.net) and Dr. Dong Choi (www.ncgt.org). This phenomenon then causes us to ask concerning what we can do as human being in Earth to avoid the worsening situation in terms of Earth cooling temperature in the coming years.

It is well known that Shannon information entropy can reduce to the Boltzmann entropy, but we are not sure yet how temperature in thermodynamics sense can be related to the information entropy measures. Here we submit a viewpoint that it is possible to put temperature in thermodynamics sense in terms of information entropy. This result is quite new, and it is worth to be communicated to wider audience, since it affects temperature of the Earth. We expect that people start to be wiser and more efficient in using and sending information especially via online and electronic media.

2. Background Theory on Information Entropy

Shannon information entropy is defined as follows [1, p.4]:

$$S = -k \sum_{i=1}^{w} \rho i \, ln \, \rho i \tag{1}$$

For the uniform distribution, then the Shannon entropy takes on its maximum value and it reduces to be
Boltzmann entropy [1, p.5]:

$$S = k ln \mathrm{W} \tag{2}$$

And then we conclude that both equations essentially correspond to the same process, i.e. the sending and receiving of information, provided we assume that the Earth is a large information retrieval

system. Therefore we can accept that actually Boltzmann entropy is neatly related to information entropy, and therefore we can proceed further to accept that the thermodynamics temperature of the Earth corresponds neatly to the amount of information sent and received in the Earth. Actually Boltzmann himself did not realize the full implications of his thermodynamics equation, because he did not know beforehand how the Sun activity actually corresponds to the ambience temperature of the Earth.

The correspondence between the process of information retrieval and thermodynamics entropy can be expressed as follows [2, p.6]:

$$\left| \frac{\delta Q}{dS/(ln2)} \right| \geq kT.ln2 \qquad (3)$$

Where the principle is based on Clausius inequality and states that many-to-one operations like erasure of information requires the dissipation of energy. And the right hand side of the inequality is known as Landauer bound.

In other words, one should be very careful because sending and receiving useless information can affect temperature without one realizes it, although how precisely the mechanism that information can affect global temperature remains mystery. This increasing information content of the Earth has been discussed in a few papers, see for instance Hosoya-Buchert-Morita's paper [3], although they figure out the problem without connecting it with the increasing of temperature of the Earth. It is because they assume that the increasing information content is related to the Relative Information Entropy of a cosmological model containing dust matter [3]; but actually the increasing information content in the Universe corresponds strongly to the increasing use of online information in recent decades.

3. Shannon Entropy and Global Temperature

According to Nicola Scafetta and Bruce West [5], Earth's short-term temperature anomalies and the solar flare intermittency are linked, and the relation can be expressed in terms of Shannon entropy, S(t):

$$S(t) = -\int_{-\infty}^{\infty} \rho\,(x,t \ln[\rho(x,t)] = A + \delta \ln(t) \tag{4}$$

Where A is constant and δ is found to be 0.67 for global temperature data between 1860-2000. However, since 2000 the global temperature shows declining change significantly caused by low Sun activity.

It should be emphasized here that solar activity is not the only factor that affects Earth's temperature; other factors may include planetary synchronicity [6].

Moreover, it should be noted that there is a critique on the hypothesis that Solar activity affects global temperature, see for instance Gil-Alana et al. [8], nonetheless their arguments have been refuted by Scafetta in his recent paper [7].

So the conclusion is that there is nonlinear relationship between Sunspot number and Earth temperature. In the subsequent section, I will discuss a possible model in terms of Momentary Information Transfer as proposed by Runge et al.

4. Momentary Information Transfer (MIT) and Source Entropy

In his dissertation, Jakob G.B. Runge describes some new notions [4]. The notion of momentary information is introduced in Section 3.1.3, and momentary information transfer is explained in Section 3.4.5. The basic approach is to measure causal coupling strength (see Section 3.4.5) based on source entropy (also termed entropy rate from Shannon, 1948). The goal is to quantify the interaction between two

causally linked processes as well as along causal paths and between multiple processes such as the earth's surface temperature (cooling and heating), atmosphere, moon and sun.

Climatological analysis using MIT is introduced in Appendix B. Large MIT values indicate strong coupling between Earth's surface and upper tropospheric levels, as discussed in Appendix B.3.

As an example, following Runge et al. (2012b), we compare mutual information (MI), transfer entropy (TE), the CMI defining causal links (LINK), information transfer to Y (ITY) and from X (ITX), and momentary information transfer (MIT) on an analytically tractable model of a multivariate Gaussian process: [4, p. 93]

$$Z_t = C_{XZ} X_{t-1} + \eta t^z$$

$$X_t = a_X X_{t-1} + \eta t^z$$

$$Y_t = C_{XY} X_{t-1} + C_{WY} W_{t-1} \eta t^z$$

$$W_t = \eta t^w$$

We hope that in the near future, more exact physical models will be developed to describe how information exchange can affect Earth's ambient temperature.

5. Further Discussion

While our proposition here is somewhat simplified, here we discuss further how things are possibly linked:

Global data growth → Shannon entropy → global average temperature → Schumann resonance

For instance, some researchers have shown:

1. Global average temperature is linked to Schumann resonance
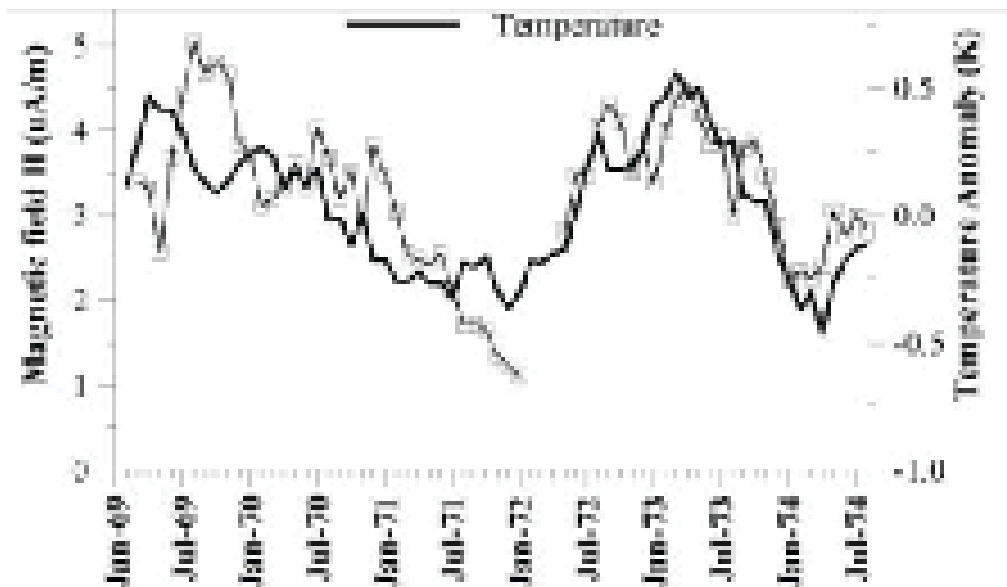
Figure 1: Correlation between global temperature and the intensity of Schumann resonance oscillations (adopted from Williams, 1992) Source: ref. [12]

2. Global data is increasing exponentially, almost following Moore's law.
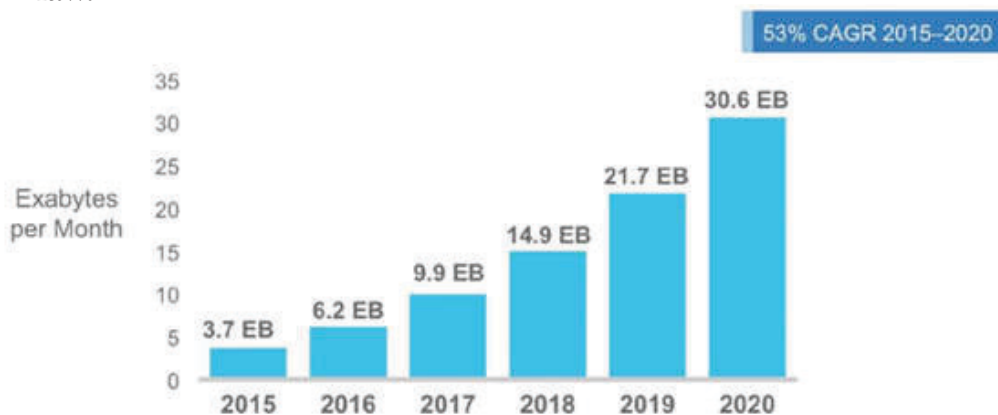
Figure 2: Source: Cisco VNI Mobile, 2016. See [10][11]

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3. Shannon entropy is also linked to variation of Earth magnetic field (using Kolmogorov or kentropy). See ref. [13].

4. Declining Earth magnetic field is also linked to Earth climate, as emphasized by Campuzano et al. in a recent report in Plos ONE [14]:

> "The debated question on the possible relation between the Earth's magnetic field and climate has been usually focused on direct correlations between different time series representing both systems. However, the physical mechanism able to potentially explain this connection is still an open issue. Finding hints about how this connection could work would suppose an important advance in the search of an adequate physical mechanism. Here, we propose an innovative information-theoretic tool, i.e. the transfer entropy, as a good candidate for this scope because is able to determine, not simply the possible existence of a connection, but even the direction in which the link is produced. We have applied this new methodology to two real time series, the South Atlantic Anomaly (SAA) area extent at the Earth's surface (representing the geomagnetic field system) and the Global Sea Level (GSL) rise (for the climate system) for the last 300 years, to measure the possible information flow and sense between them. This connection was previously suggested considering only the longterm trend while now we study this possibility also in shorter scales. The new results seem to support this hypothesis, with more information transferred from the SAA to the GSL time series, with about 90% of confidence level. This result provides new clues on the existence of a link between the geomagnetic field and the Earth's climate in the past and on the physical mechanism involved because, thanks to the application of the transfer entropy, we have determined that the sense of the connection seems to go from the system that produces geomagnetic field to the climate system. Of course, the connection does not mean that the geomagnetic field is fully responsible for the climate changes, rather that it is an important driving component to the variations of the climate."

6. Urgent Recommendation

Now we obtain that temperature of the Earth can be modeled by assuming that the Earth is a large information retrieval system, therefore Shannon information entropy can be used to represent the amount of information sent and received in the Earth. Therefore if many people send and receive information to the system without taking care to its effects to the temperature of the Earth, then the accumulative result can be dangerous to the entire system, including to the human population and environment of the Earth. Now we see that the use of online information is already increasing rapidly A Thousand Words: How Shannon Entropy Perspective Provides Link between Exponential Data Growth, Average Temperature of the Earth and Declining Earth Magnetic Field in recent years largely because of the Internet, and as a result it contributes to the declining temperature in this Earth.

Therefore, we urge that server administrators of the online information, including online email servers, to reduce the amount of information which are put 'online'. This action shall include reducing the amount of emails which are put online, and reserve those emails into offline databases. But this action shall be made carefully and responsibly, otherwise it may cause Ice Age again in this Earth, and also disturbance of environment stability, because of rapid decreasing of temperature.

We wrote this article very shortly because we want to emphasize that information shall be sent and received more efficiently and more responsibly. The server administrators of the online information channels shall take care too on how much emails and other information shall be kept online in order to maintain the ambience temperature to remain within the acceptable range, i.e. between 25-27 degree Celsius. Therefore we urge that server administrators also monitor the effect of the already increasing amount of the online information and email messages in the past few days to the ambience temperature.

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The effect of reducing the amount of online information can be observed and felt almost immediately, because of the entropy and temperature is transmitted immediately; it is because the Earth is intertwined to the Universe.

We recommend that all server administrators of online information channels to pray and ask for guidance from God, especially on how to maintain their online servers in a better and more effective way, in order to avoid further damage and destruction of this Earth because of rapidly increasing online information.

Furthermore, scientific journal Editors should maintain the published papers in the most efficient way possible, and do not upload too many large files if they can be kept as "optional" online. By keeping online communication at the most efficient, we can do the best to avoid the Earth magnetic field from declining further, in line with "A thousand words" spirit.

We hope this short article will be read in front of other physicists and also in front of all server administrators of online information channels, including Yahoo!, Google, Hotmail and other large email servers.

7. Concluding Remarks

The sunspot data seems to indicate that the Sun is likely to enter Maunder Minimum, then it will mean that low Sun activity may cause low temperature in Earth. If this happens then it will cause a phenomenon which is called by some climatology experts as "The Little Ice Age" for the next 20-30 years, starting from this year (2015). Therefore, the Earth climate in the coming years tend to be cooler than before. This phenomenon then causes us to ask: what can we do as human being in Earth to postpone or avoid the worsening situation in terms of Earth cooling temperature in the coming years?

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paper is that perhaps it is possible to model Sun-Earth interaction in terms of Shannon entropy. Since Shannon entropy can be expressed as bit of information, then it would mean that perhaps we can do something with Earth temperature by controlling the amount of information transfer and storage in the Earth.

Our proposal is somewhat in resemblance with message of a 2012 movie "A Thousand words" where we shall strive to love our neighbours and nature, instead of dwelling in a culture of fast-talk (starred by Eddie Murphy).

Since Shannon entropy can be expressed as bits of information, then it would mean that perhaps we can do something with Earth temperature by controlling the amount of information transfer and storage in the Earth. We hope that in the near future, more exact physical models will be developed to describe how information exchange can affect Earth's ambient temperature.

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(There are of course many references on the subject of Shannon entropy, but there are only very few papers which clearly address this subject of increasing temperature of the Earth because of increasing use of information. We mention here only a few references.)

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A Review on Electroculture, Magneticulture and Laserculture to Boost Plant Growth

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Abstract

While several reviews on potential applications of electroculture are available, in this survey we discuss these issues from history, starting from earliest experiments by Ross. And in the last section, we discuss possible application of laserculture, another form of potential improvement. It is our hope that what we present here may be found useful for improving agricultural performance in many countries, as well as reducing dependence on fertilizer.

Keywords: add 4-5 keywords

Introduction

To cause harvests to become bigger and quicker has been the essential worry of agribusiness for a long time. All strategies for development methods what's more, advances have been created to satisfy this point; from basic yield pivot to complex manufactured composts. Another development innovation found in farming is the use of power and attraction that can speed up development rates, increment yields, and improve crop quality. That innovation is called *electroculture*. Electroculture can shield plants from infections and creepy crawly and moreover diminish the prerequisites for manure or pesticides. Ranchers can develop greater and better harvests in less time, with less exertion (Barinov, 2012).

Harvest yields and quality are improved similarly. The energies are applied to the seeds, plants, soil or the water and supplements. Also, in this way huge loads of food can be developed in a quarter section of land or less, in gardens, on galleries, housetops, in window boxes or aqua-farming or permaculture. That converts into immeasurably expanded benefits for cannabis cultivators specifically, and some\ other culturist. Aqua-farming frameworks are obviously appropriate for electroculture (Nelson, 1982).

Also, there's more - a whole lot more, as the Russian scientists B.R. Lazarenko and I.B. Gorbatovoskaya detailed (with paraphrasing): "Reports that the attributes obtained by the plants in electrically

treated soils are sent by legacy to the third era are especially fascinating. Affected by the electrical flow, the mathematical extents between hemp plants of various genders was changed by examination with the control to give an expanded number of female plants by 20-25%, regarding a decrease in the power of the oxidative cycles in the plant tissues." (Lazarenko & Gorbatovoskaya, 1966).

Methodology

In this article, we used methodology of literature survey. In this short literature survey, we discuss some methods which may have great impact in terms of plant growth and also reduce time needed to grow.

We tried to include not only literature from the Western publications, but also from Eastern Europe and also Asian authors, because some of the ideas are quite old.

History of Electroculture

Exploratory investigation of the impacts of power on plant development started in 1746, when Dr. Maimbray of Edinburg treated myrtle plants with the yield of an electrostatic generator, consequently upgrading their development and blooming. After two years, the French abbot Jean Nolet discovered that plants react with sped up paces of germination and in general development when developed under charged terminals (Nelson, 1982).

Starting in 1885, the Finnish researcher Selim Laemstrom tried different things with an airborne framework controlled by a Wimshurst generator and Leyden containers. He tracked down that the electrical release from wire focuses invigorated the development of yields like potatoes, carrots, and celery for an normal increment of about 40% (up to 70%) inside about two months. Nursery developed strawberry plants delivered ready natural product fifty-fifty the standard time. The yield of raspberries was expanded by 95%, what's more, the yield of carrots was expanded by 125%. Yields of cabbage,

turnips, and flax, be that as it may, became preferred without jolt over with it. The Laemstrom framework included a flat radio wire suspended sufficiently high to allow furrowing, weeding and water system. The voltage applied to the reception apparatus differs from 2 to 70 KV, contingent upon the stature of the recieving wire. The current was around 11 amps.

In April 16, 1900, there was a Nature magazine edition, mentioned about electroculture:

Figure 1: Coverage on electroculture in *Nature*, 1900.

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Another old book on electroculture was published by EC. Dudgeon:
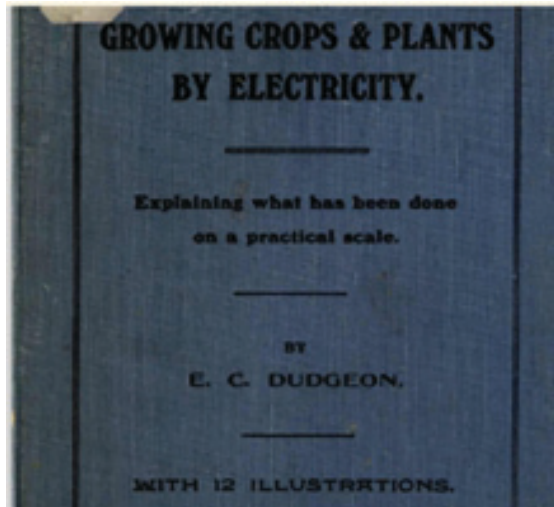
Figure 2: EC Dudgeon's book (unknown date)

Among other things, Dudgeon reported experiments by Prof. Laemstrom:

Crop.	Increase per cent.	
Strawberries	37.0	
Potatoes (1st)	31.1	
Potatoes (2nd)	15.4	Average 23.3
Mangolds	25.0	
Peas	20.0	
Sugar Beet	No difference; but analysis showed slight increase of sugar.	

In the same year an experiment was carried on near Breslau, in Germany—the weather throughout was very similar to that at Durham College, Newcastle. Results were as follows :—

Crop.	Increase per cent.	
Strawberries	50.1	
Carrots	13.1	
Potatoes (1st)	13.8	
Potatoes (2nd)	17.4	average 20.8
Potatoes (3rd)	30.3	
Oats (1st)	40.7	
Oats (2nd)	4.5	average 22.6
Barley (1st)	6.9	
Barley (2nd)	14.2	average 10.6

Figure 3: Crop growth improvement, EC Dudgeon (unknown date)

In 1909, the Swiss minister J.J. Gasner acquired comparable outcomes with his replication of Laemstrom's work. Likewise that year, Prof. G. Stone showed that a couple of sparkles of friction based electricity released into the dirt every day expanded soil microbes up to 600%.

During the 1920s, V.H. Blackman revealed his examinations with an aeronautical framework like that of Laemstrom. He applied 60 volts DC/1 milliamp through 3 steel wires each 32 ft long and suspended 6 ft separated and 7 ft high on posts. The course of action expanded yields about half for a few plant types (Nelson, 1982).

Wet soil improves current stream. Electrocultured plants need about 10% more water than control plants in light of the fact that the charged water is sweated more quickly than under typical conditions.

Antenna Systems

As discussed by Barinov, it is also possible to implement antenna systems to improve plant performance. The French rancher Justin Christofloreau stood out in 1925 with his contraption to gather barometrical energy for his yields. Clover treated by his strategy grew 7 feet high. Christofloreau's contraption comprised of a 25-ft wooden post; at the top was a metal pointer adjusted north-south, and a reception apparatus. Copper and zinc strips were bound together to produce power from sun based warmth. A few of the shafts were set around 10 ft separated, and the wires driving from them reached out about 1000 yards. Christofloreau asserted that the amassed power obliterated parasites and advanced advantageous synthetic cycles in the dirt (Barinov, 2012).

In 1924, Georges Lakhovsky contrived his Oscillator Circuit, a one-become copper curl with covering closes isolated by a hole. Capacitance creates swaying flows that advantage the plants. The ring is upheld by an encasing like a plastic bar. This amazingly straightforward course of action animates plant development.

Other setups likewise upgrade plant development. A funnel shaped loop of solid wire twisted with 9 turns (counter-clockwise in the Northern Hemisphere, clockwise in the Southern), when stuck in the ground around 1 ft north of a plant, will gather barometrical power. Associate a wire from the fence to a metal bar close to the plants. A television reception apparatus likewise can be utilized. Rebar can be sunk into the ground at each end of a column of plants, associated by an uncovered wire under the dirt or potentially noticeable all around. A north-south direction will exploit geomagnetic extremity (Butchbaker 1976).

More Recent Development: Solar Powered Electroculture

As discussed by E.M. Reyes et al., supporting the idea of power's part in plant development incitement and utilization of sun oriented innovation, the scientist planned and built up a venture that would help increment the development of plants without losing their quality and nourishment. Electroculture with appropriate watering framework will assist the plants with developing. Besides, the convenient sun based force supply might be utilized to control up the undertaking for a more financially savvy activity (Reyes et al, 2019).

Moreover, they concluded as follows (with paraphrasing):

> "An all around planned electroculture strategy significantly affects family pay. As seen in the investigation, the ordinary gathering season of pechay plants is diminished by seven days. This implies decrease in the utilization of water, composts and bugs controls. Also, electroculture procedure outlines low support and working expense that best fits for each ranchers developing vegetables plants. It will give ranchers an opportunity to develop great yields quicker, lessen ecological issues brought about by utilizing natural composts what's more, increment their pay." (Reyes et al., 2019).

Magnetoculture

"Magnetoculture", as the name suggests, utilizes attractive fields from mineral magnetite (Fe_3O_4), lasting magnets, or electromagnets

to influence plant digestion. Spread magnetite in a ring around the roots, or in a north-south line. The indistinct attractive field will improve the germination and resulting advancement to different degrees relying upon the plant, developing conditions, and the sort, extremity, and strength of the attractive field (Nelson, 1982).

Agronomist Yannick van Doorne has built up a "*attractive radio wire*", a chamber loaded up with beeswax and magnets, wrapped with a curl, and electrostatically charged. The gadgets are set at the finishes of lines furrowed north and south, and associated with electrifies steel wire.

The resultant yields are nutritious, and heavenly, and three to multiple times greater than expected since the most recent ten years in similar fields." The technique created by Pearl Eitan (Patent IL31428) requires the utilization of 100 lb of magnetite/section of land with an electrostatic charge. The outcome is "resistivity to subfreezing temperatures and creepy crawlies, expanded organic product size, yield, development rates, and expanded number of crops/year." (Nelson, 1982).

Laserculture: Effects of UV-B radiation, Laser irradiation, and LED lighting

Apart of the aforementioned methods to improve plant growth, there are other methods based on ultraviolet (UV-B) and laser/LED irradiation. We will discuss these possible treatments one by one. As reported by Zuk-Golaszewska et al:

> "In the investigation directed in the nursery, the various portions of UV-B radiation applied to the two species initiated changes in leaf and plant morphology. It was an abatement of plant tallness, new mass of leaves, shoots and roots just as leaf region. Additionally, it caused the leaf twisting in both of the species. The huge contrasts between the two are in the considered attributes were basically because of the tillering capacity of the species. The substance of chlorophyll shifted impressively. The normal estimations of leaf

greenness (SPAD units) for oats were around 43 while for green foxtail 32, separately. U-VB didn't diminish leaf weight proportion, shoot dry matter, shoot to root proportion and leaf territory proportion."(Zuk-Golazewska et al., 2003)

Moreover, with regards to laser applications in agriculture, M. Hasan wrote that laser innovation can be a helpful choice to be joined into frameworks of rural creation. Accordingly, more consideration was given as of late to actual elements that might be appropriate to preparing of planting material. To guarantee a high seed execution, different techniques for handling are utilized, including substance arrangements, for example, seed immunization by synthetic material and development controllers, just as actual components, including laser light and attractive fields. Pre-planting treatment was applied to invigorate the seeds to all the more likely sprout and fill quicker in different planting conditions. The utilization of actual elements for controlling the impact of organic conduct during advancement and capacity of various societies is a cutting edge pattern in joining the strengthening of plant innovations with environmental necessities (Hasan et al., 2020).

The mechanism of LASER improvement of plant growth is outlined as follows: The premise of the incitement component in any plant physiological stage is the synergism between the enraptured monochromatic laser bar and the photoreceptors that, when set off, initiate various organic responses. There are numerous realities that demonstrate the biostimulating activity of laser radiation on different organs and tidsues in creatures and plants. The plants assimilate light through their photoreceptors (Hernandez et al., 2010).

And last but not least, there is also PARUS technology, which uses LED lighting to improve plant growth processes.[23]

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23 Parus technology. Plants grow with LED Lighting. http://www.parus.co.kr

All of these seem to suggest that laser /UV-B radiation along with LED lighting are very promising alternatives too in order to boost plant growth.

Concluding Remark

In this short literature survey, we discuss some methods which may have great impact in terms of plant growth and also reduce time needed to grow. Those methods include electroculture, antenna systems and also magneticculture.

Apart of the aforementioned methods to improve plant growth, there are other methods based on ultraviolet (UV-B) and laser/LED irradiation. We discuss these possible treatments one by one.

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Concluding Remark

Allow these writers to conclude with a hopeful lyrics from El Shaddai song by Amy Grant, that there is indeed hope for humanity, because God Almighty is our El Shaddai. Maranatha!

El shaddai, el shaddai

El-elyon na adonia

Age to age You're still the same

By the power of the name

El shaddai, el shaddai

Erkamka na adonai

We will praise and lift You high

El shaddai

Through Your love and through the ram

You saved the son of Abraham

Through the power of Your hand

Turned the sea into dry land

To the outcast on her knees

You were the God who really sees

And by Your might

You set Your children free

Source:
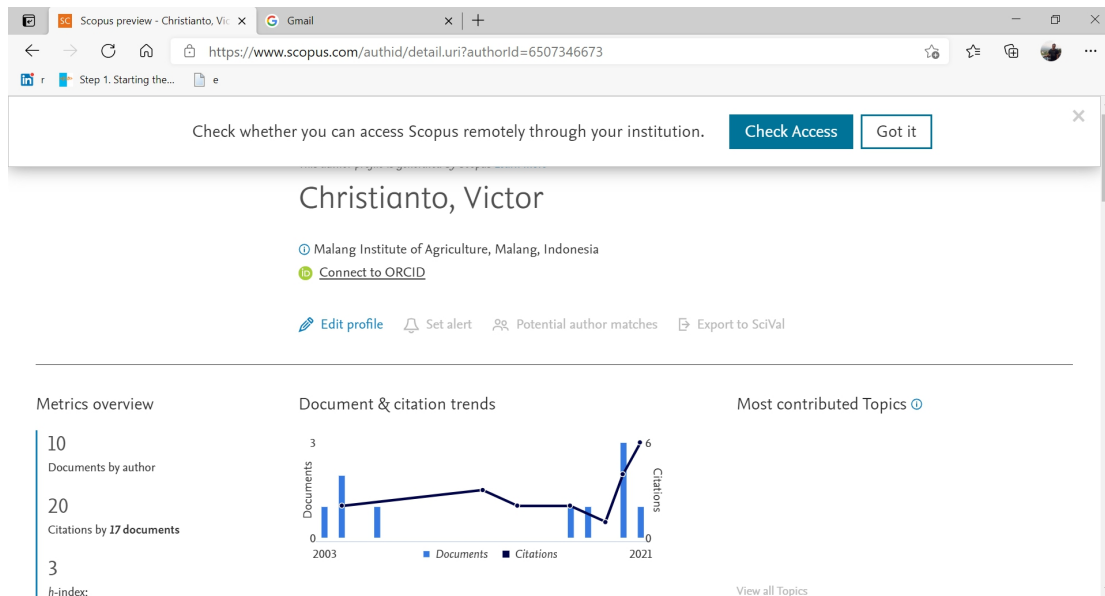
Songwriters: John W Thompson / Michael J. Card Lirics El Shaddai
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Victor Christianto

Personal website: www.SecondComingInstitute.com

Link at academia: http://sttsati.academia.edu/VChristianto

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Short biography of Professor Florentin Smarandache, PhD.
(postdoc in mathematics and sciences)

Florentin Smarandache is a professor of mathematics at the University of New Mexico, United States. He got his MSc in Mathematics and Computer Science from the University of Craiova, Romania, PhD in Mathematics from the State University of Kishinev, and Postdoctoral in Applied Mathematics from Okayama University of Sciences, Japan, and The Guangdong University of Technology, Guangzhou, China. ₩

He is the founder of neutrosophy (generalization of dialectics), neutrosophic set, logic, probability and statistics since 1995 and has published hundreds of papers and books on neutrosophic physics, superluminal and instantaneous physics, unmatter, quantum paradoxes, absolute theory of relativity, redshift and blueshift due to the medium gradient and refraction index besides the Doppler effect, paradoxism, outerart, neutrosophy as a new branch of philosophy, Law of Included Multiple-Middle, multispace and multistructure, hypersoft set, SuperHyperGraph, SuperHyperAlgebra, Neutrosophic SuperHyperAlgebra, degree of dependence and independence between neutrosophic components, refined neutrosophic set, neutrosophic over-under-off-set, plithogenic set / logic / probability / statistics, neutrosophic triplet and duplet structures, quadruple neutrosophic structures, extension of algebraic structures to NeutroAlgebras and AntiAlgebras, NeutroGeometry & AntiGeometry, Dezert-Smarandache Theory and so on to many peer-reviewed international journals and many books and he presented papers and plenary lectures to many international conferences around the world.

In addition, he published many books of poetry, dramas, children′ stories, translations, essays, a novel, folklore collections, traveling memories, and art albums [http://fs.unm.edu/FlorentinSmarandache.htm].