A few calculations on receding planetary orbit distances from spherical kinetic dynamics

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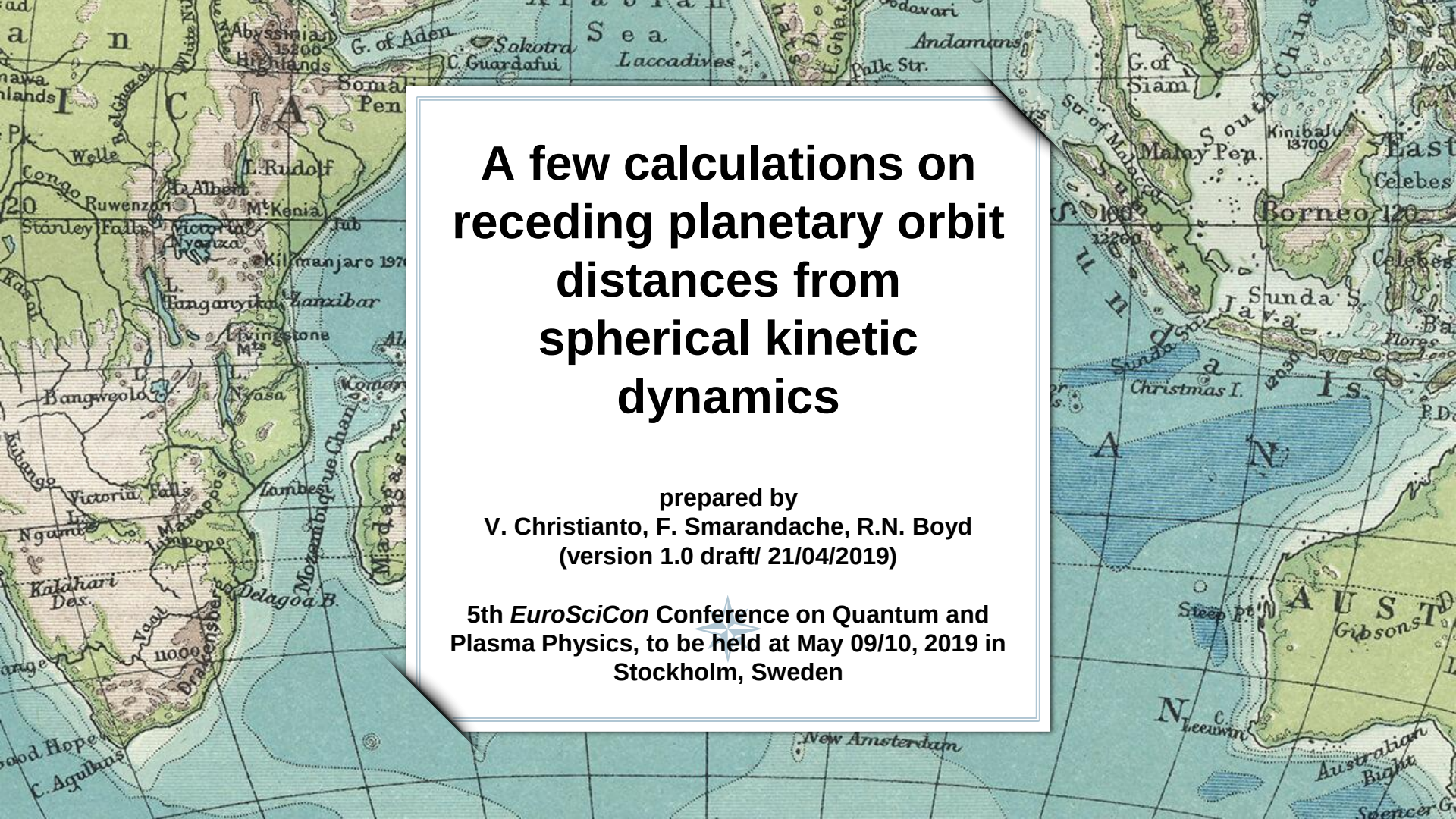

A few calculations on receding planetary orbit distances from spherical kinetic dynamics

prepared by
V. Christianto, F. Smarandache, R.N. Boyd
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5th *EuroSciCon* Conference on Quantum and Plasma Physics, to be held at May 09/10, 2019 in Stockholm, Sweden

HELLO!

I am Victor Christianto, CE., DDiv.

I am here because I love to give presentations concerning science and gravitation. You can find me at @Christianto2013

HELLO!

I am Professor Florentin Smarandache, PhD.

I am here because I love to give presentations concerning maths and science. You can find me at http://fs.gallup.unm.edu

HELLO!

I am Robert Neil Boyd, PhD.

I am here because I love to give presentations concerning sciences and SubQuantum Plenum Theory

A few words about these authors

Victor Christianto, CE., DDiv.

He was born in Indonesia, and studied engineering in a state university in East Java. In Dec. 2008 he was granted a scholarship to study gravitation and cosmology at Institute of Gravitation and Cosmology in Moscow until June 2009. Since Oct. 2009, he works for Jesus Christ. url: https://www.researchgate.net/profile/Victor_Christianto

Get his book: https://www.morebooks.de/store/gb/book/seeking-a-theory-for-the-end-of-the-world/isbn/978-3-659-58074-1.

Prof. Florentin Smarandache, PhD.

Scientist and writer. Wrote in four languages: English, Romanian, French, and Spanish. Published over 450 scientific papers and 180 books in mathematics, physics, engineering, computer science, information fusion, as well as literary works such as poetry, stories, essays, a novel, translations, dramas, plays for children, folklore, and albums of arts.

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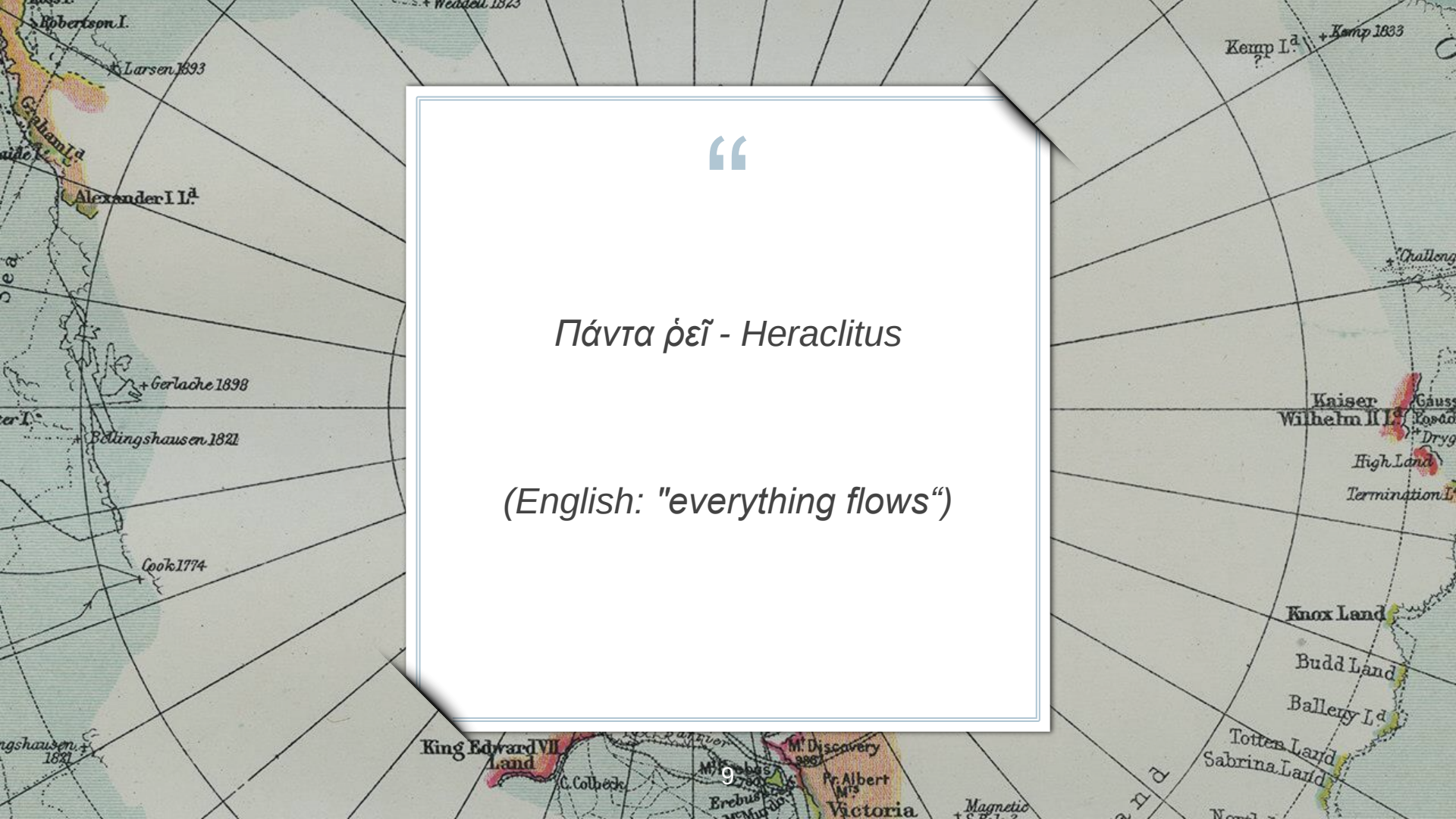
Robert Neil Boyd, PhD.

Robert Boyd currently works at the Princeton Biotechnology Corporation. Experience in plasma physics: 8years of experience encompassing thermonuclear hydrodynamics research in plasma stability theory, tailored plasmas, field structures, colliding beam turbulence, instability trapping, and thermalization theory. Design of several thermonuclear plasma confinement methods, the apparatus proved capable of developing and containing self-sustaining thermonuclear fusion reactions, and developed a net energy gain, being only the third successful fusion reactor design in the history of plasma physics research. url: https://www.researchgate.net/profile/Robert_Boyd20

The Moon is receding from Earth, the planets are also receding from the Sun.

Question: why? Let's start with the some basic ideas



Πάντα ῥεῖ - Heraclitus

(English: "everything flows“)

How significant is the receding Moon phenomenon?

- If we can explain the process behind the receding planets from the Sun, it may yield to a new theory of gravitation, inspired by Le Sage/Laplace gravity.
- What is Le Sage gravity theory in simpler term? Gravitation is not a “pull” force but also “push” force. It is preferable to call it: “*pullsh*” force.
- This paper may give us hint towards unification of forces.

BIG CONCEPT

How can we measure precisely how this Earth and Solar system changes, with satellite and other artificial methods ?

Is there a geological evidence supporting a “push” gravity?

A complex idea such as gravitation can be summarised in one term to find geological evidence: “Pangea hypothesis” which suggests Expanding Earth paradigm

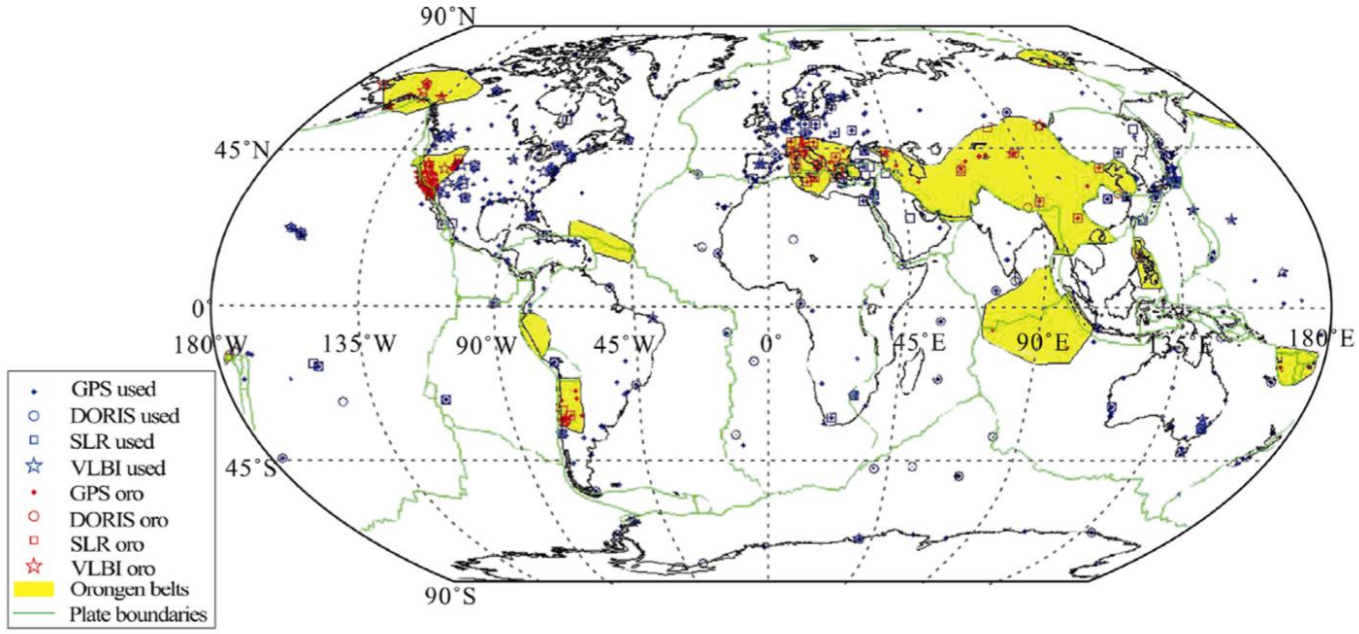
And there are geological evidences supporting nonconventional tectonophysics, beyond “plate tectonics.”

How significant is the receding Moon phenomenon?

- A number of papers has been accumulated over a new concept of tectonophysics based on geodynamics, as indication of expanding earth.
- See for instance:

- Evidences of the expanding Earth from space-geodetic data over solid land and sea level rise in recent two decades. Shen Wenbina, Shen Ziyua, Sun Rongc, Barkin Yurid. Geodesy and Geodynamics, vol. 6 no. 4 (2015)

- Earth structural patterns and rhythmic tectonism. FORESE-CARLO WEZEL. Tectonophysrts. 146 (1988) l-45



2.

Observational evidence as impetus to Le Sage gravity theory

Introducing ALMMOND theory

How significant is the receding Moon phenomenon?

- Despite majority of physical theories of gravitation assuming it is a pull force, a number of researchers began to work out a “push” gravity, which is known as Le Sage/Laplace gravitation theory.
- What is Le Sage gravity theory in simpler term? Gravitation is not a “pull” force but also “push” force. It is preferable to call it: “*pullsh*” force.

Impetus for Le Sage gravity

- 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:
- “…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. …

Impetus for Le Sage gravity

- 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 τ time (our galaxy) time…" (Halton Arp. The Observational Impetus for Le Sage Gravity. url: http://www.haltonarp.com)

Impetus for Le Sage gravity

- Therefore, there are many reasons to support Le Sage gravity, despite majority of physicists prefer Einsteinian view. Summarizing, there should be a hidden dynamical matter creation process, suggesting that Newton third law was actually not just F=ma, but
- $$F=d[mv]/dt = m[dv/dt]+v[dm/dt],$$
- therefore there is mass creation part.
- Almost all physics of Earth etc. assuming the Earth is static, but actually it is increasing in size and mass.

Impetus for Le Sage gravity

- Moreover, from a Neutrosophic Logic 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. receding Moon from Earth (around 4cm/yr), b. expanding earth caused by dissipative geodynamics process, c. Pangea hypothesis.

Impetus for Le Sage gravity

- Allow us to introduce another new term in order to reconcile push and pull gravitational force, i.e. *pullsh* force. Such an idea will be presented in the following subsection, by comparing with the known Milgrom's MOND theory (Modified Newton Dynamics), after Mordehai Milgrom.
- **First, we shall derive here an equation of quantized planetary orbit, starting from superfluid quantized vortices view.**

From quantized orbit distance to ALMMOND

- Based on previous known analogy and recent research suggesting that there is neat linkage between gravitation and condensed matter physics, we could hypothesize that *planetary quantization is related to quantized vortex*. In principle, this hypothesis starts with observation that in quantum fluid systems like superfluidity, it is known that such vortexes are subject to quantization condition of integer multiples of 2p, or $\oint v_s.dl = 2\pi.n\hbar / m_4$

From quantized orbit distance to ALMMOND

- In order to In order to obtain planetary orbit prediction from this hypothesis we could begin by conjecture that there is neat relation between $\oint v_s.dl = 2\pi.n\hbar / m_4$
- and the Bohr-Sommerfeld's conjecture of quantization of angular momentum. As we know, for the wavefunction to be well defined and unique, the momenta must satisfy Bohr-Sommerfeld's quantization condition $\oint_{\Gamma} p.dx = 2\pi.n\hbar$

From quantized orbit distance to ALMMOND

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

$$\int_0^T v^2 . d\tau = \omega^2 . T = 2\pi . \omega$$

- Just like in the elementary Bohr theory (before Schrödinger), after some elementary equations will yield a pair of equations which results of a known simple solution for the orbit radius for any quantum number of the form:

From quantized orbit distance to ALMMOND

$$r = n^2.g^2 /(4\pi^2.GM.m^2)$$

- Or

$$r = n^2.GM / v_o^2$$

- where r, n, G, M, v_o represents orbit radii (semimajor axes), quantum number (n=1,2,3,…), Newton gravitation constant, and mass of the nucleus of orbit, and specific velocity, respectively.

From quantized orbit distance to ALMMOND

Comparing with Nottale's scale relativity equation, where he obtained that planetary orbits are quantized according to the law:

$$a_n = GMn^2 / v_o^2$$

where a_n,G,M,n,v_o each represents orbit radius for given n, Newton gravitation constant, mass of the Sun, quantum number, and specific velocity (v_o=144 km/sec for Solar system and also exoplanet systems), respectively. (see V. Christianto. *Annales de la Fondation Louis de Broglie*, vol. 31, 2006)

From quantized orbit distance to ALMMOND

Comparing with Milgrom's MOND (see for instance https://arxiv.org/pdf/1308.5894v1.pdf).

Then we introduce a time dependent factor into to the equation we obtained above

$$a_n = GMn^2 / v_o^2$$

Our analysis goes as follows:

From quantized orbit distance to ALMMOND

By reexpressing equation for mass flux effect by defining

$$M_{n+1} = M_n + \Delta M_n / \Delta t_n$$

then the total equation of motion becomes:

$$(M + \Delta M / \Delta t) = (r + \Delta r / \Delta t).v_0^{\,2} / (G.n^2)$$

For $\Delta \to 0$ equation above can be rewritten as:

$$dM / dt - \chi.dr / dt + M - r.\chi = 0$$

From quantized orbit distance to ALMMOND

Where: $\chi = v_0^{\,2} / (G.n^2)$

Subsequently, it can be reexpressed in an equation of first order ODE:

$$dr / dt - M / \chi + r + \dot{\omega}.MR^2\omega / (\chi 5.c_s^{\,2}) = 0$$

This is our version of modified Newtonian dynamics, which we prefer to call: An Alternative to Milgrom's MOND (**ALMMOND**). It is based on *spherical kinetic dynamics* or we may also call it: *rotational geodynamics*.

From quantized orbit distance to ALMMOND

This equation is obviously a first-order linear ODE equation, which admits exponential solution. In effect, this implies that the revised equation for celestial quantization takes the form of spiralling motion.

This could also be interpreted as a plausible solution of diffusion equation in *dissipative* medium, which perhaps may also correspond to the origin of spiral galaxies formation.

From quantized orbit distance to ALMMOND

Although initially we wish to come up with calculation of receding moon, by using n=23 and v_o=23.71 km/sec for the Moon yields quite the same lunar distance from what is known, therefore this method still *cannot* account for the observed value ~ 0.04 m/year. Other dynamics can take account for it.

However, this method of spherical kinetic dynamics can account for receding planets from the Sun.

In this regard, it is interesting to note that Sidharth has argued in favor of varying G, $G = G_{\otimes}.\left(1 + t/t_{\otimes}\right)$

3.

Varying G and varying M

On infinitesimal capture event

From quantized orbit distance to ALMMOND

If we conjecture that instead of varying G, the spinning mass M varies, then it would result in the same effect as explained by Sidharth, because for Keplerian dynamics we could assert k=GM, where k represents the stiffness coefficient of the system.

Accordingly, Gibson has derived similar conjecture of exponential mass flux from Navier-Stokes gravitational equation, which can be rewritten in the form:

$$M = G_{\otimes}.e^{t/t_{\otimes}} = M_{\otimes}.(1 + t/t_{\otimes} + (t/t_{\otimes})^2/2! + (t/t_{\otimes})^3/3! + ..$$

From quantized orbit distance to ALMMOND

Using similar method as describe above, we can come up with prediction of receding planets from the Sun.

We get a receding orbit radius for Earth at the order of:

$$\Delta r_{Earth} / \Delta t = 6.03 m / year$$

Interestingly, there is an article hypothesizing that there is a tad effect of *receding Earth orbit from the Sun at the order of 7.5 m/year*, supposing Earth orbit radius has been expanding as large as 93×10^6 miles since the beginning of the solar epoch.

Table 1. Prediction of planetary orbit radii (r) increment

Celestial object	Quantum number (n)	Orbit increment (m/yr)
Mercury	3	2.17
Venus	4	3.86
Earth	5	6.03
Mars	6	8.68

4.

Mishin’s 5 aether phases and matter creation process

On infinitesimal capture event

How can we explain matter creation process?

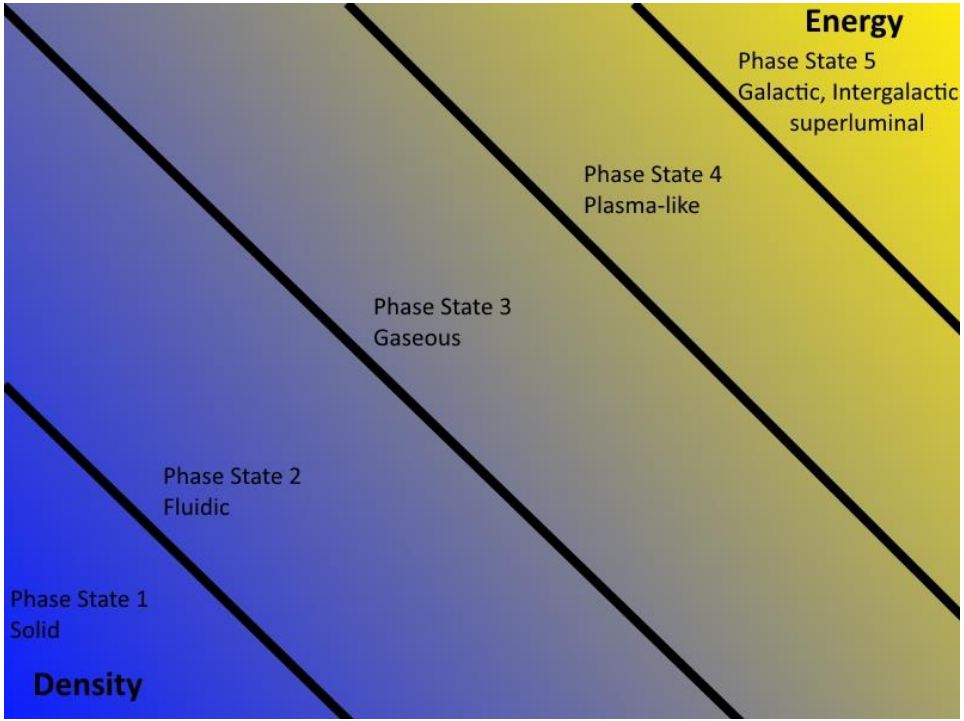
For years, one of us (RNB) developed a novel theory of gravity based on an old theory of Le Sage/Laplace (it is known as Le Sage gravitation theory).

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 we are looking at this right now.

How can we explain matter creation process?

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 5 Aether phase states:


Energy
Phase State 5
Galactic, Intergalactic
superluminal
Phase State 4
Plasma-like
Phase State 3
Gaseous
Phase State 2
Fluidic
Phase State 1
Solid
Density

How can we explain matter creation process?

- 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.

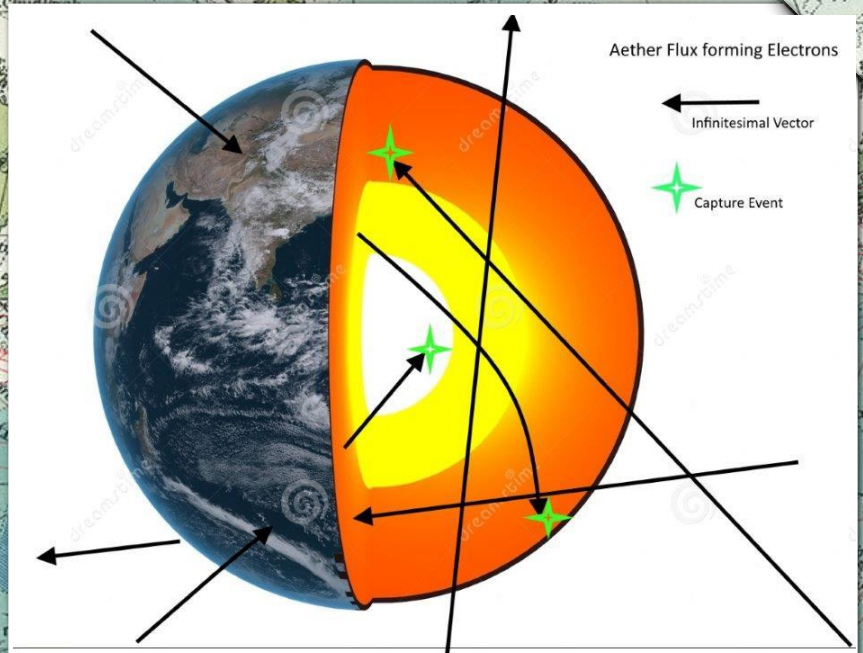


Figure 2. Illustration on how matter creation can take place in inner core of Earth

(Source: https://www.dreamstime.com/royalty-free-stock-photography-earth-core-image1890727)

How can we explain matter creation process?

- The process of matter creation can be attributed to **SQ infinitesimals** vortex capture event.
- 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.
- Infinitesimal deflections and infinitesimal captures by pre-existing matter are one of the mechanisms of matter creation.

How can we explain matter creation process?

- Everything is constantly radiating and constantly absorbing SQ infinitesimals. What is still at issue is the aether density per unit volume at the given location. There is a variable pressure caused by the aether flows which cause gravitation and time, along with an action-reaction as SQ entities (vortex lines) are diverted by existing matter.

How can we explain matter creation process?

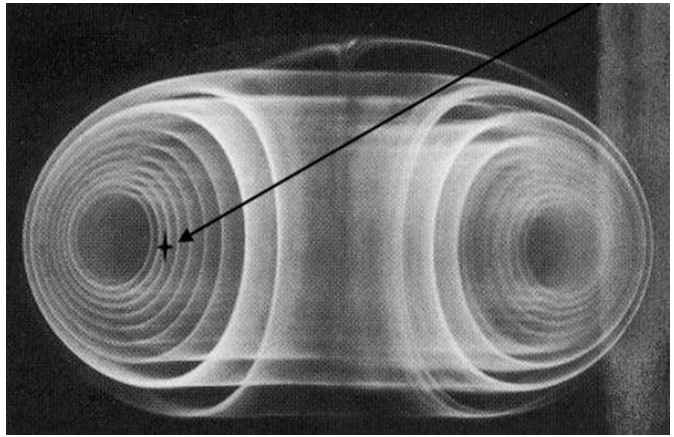
- This process was discovered by Nikola Tesla during his experiments at his Colorado Springs laboratory, where my grandfather was employed by Tesla, during those days. It is a good thing this happens, or aether avalanches produced by Tesla's 100,000,000 volt explosive electrical discharge events could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

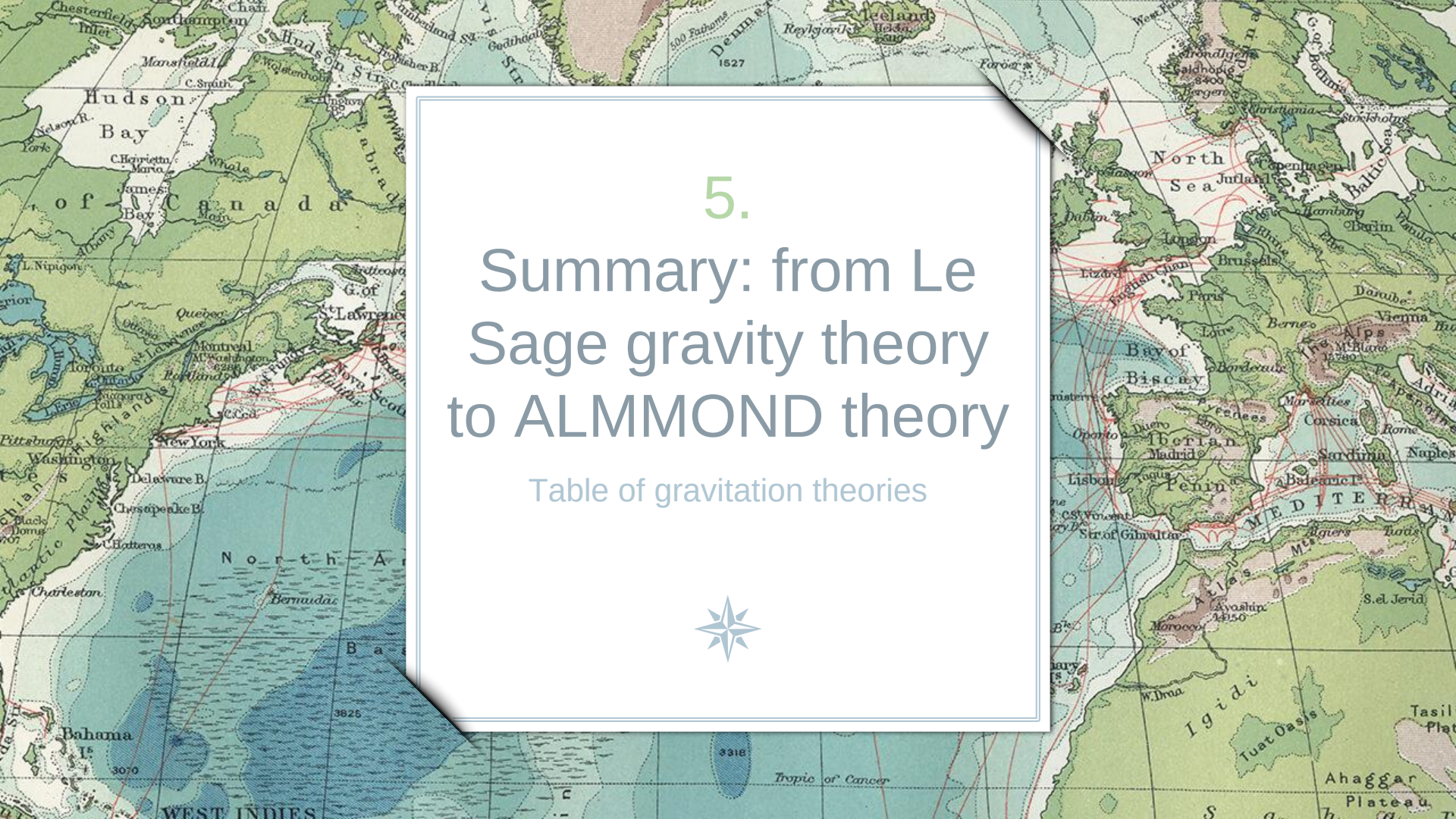
How can we explain matter creation process?

- 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.

How can we explain matter creation process?

- See also figure below:
- **Figure 3**. electron vortex capture event – Helmholtz electron vortex is *nearly indestructible* (after R.N. Boyd)





5.

Summary: from Le Sage gravity theory to ALMMOND theory

Table of gravitation theories

SUMMARY:
TABLE TO COMPARE Gravitation theories

	Newton (and ours)	Einstein	Arp/Le Sage
Pull	v	-	-
Push	v	-	v
Curvature	-	v	-

THANKS!

Version 1.2: 21/04/2019 (revised version)

Any questions?

You can find me at @Christianto2013 &
victorchristianto@gmail.com

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Special thanks to all the people who made and released these awesome resources for free:

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