Impossibility of gravitons and bi-metric Gravity; Riemann Hypothesis confirmed; Energy Localization problem solved; the Falsifiability of Science is demonstrated

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Abstract

To prove my points I am asking you to want to believe in my correctness. If your mind is set to refute, then you will "refute" even God Almighty by a wishful thinking, like the Immanuel Kant did with St. Thomas Aquinas's five ways of proving of God. So, the Hitchens's razor "Burden of Proof" and Sir Karl Popper's criterion "Science is refutable" are not quite perfect ways to build up collective inter-disciplinary knowledge. [1]

Paper "in trend" [2] talks also about gravitons (at least word "gravitino" is in abstract). Gravitons are gravitational force transmitors, but there is no force of Gravity in General Relativity. And how it could be in any adequate theory, if free falling body feels no dragging force (but the weightlessness). So, the paper just adds up to general misunderstanding. Latter is positioned [3] as the driving engine of science (like the radioactive mutations in Biology), so the question arises: how many papers are a bit wrong?

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Indeed, the theory of academic Logunov, where background is continuous flat spacetime of Minkowski with force field of Gravity in it, has found no continuation: [5].

The Logunov has bi-metric theory. But that causes the particles to experience force of gravity, as gravity is not just spacetime curvature in these theories. There are several bi-metric theories, which suffer the same sickness, as example, the Gauge Theory of Gravity.

Let us show the problem of bi-metric theories following simple way. Mathematically speaking, the photons are the limit of mass-objects, whereas their rest mass tends to zero, while the velocity tends to c. Thus, there is the same force F^ν acting on a photon with momentum $P^\nu(\eta)$ and on a mass-particle with momentum $p^\nu(\tau)$ in flat Minkowski background spacetime

$$\frac{d\,P_\nu}{d\eta} = \frac{d\,p_\nu}{d\tau} = F_\nu \,. \tag{1}$$

Because holds the normation

$$P^\nu P_\nu = 0 \,, \qquad p^\nu p_\nu = -1 \,,$$

then after taking covariant derivations

$$P^\nu \frac{D\,P_\nu}{d\eta} = 0 \,, \qquad p^\nu \frac{D\,p_\nu}{d\tau} = 0 \,.$$

But because spacetime is flat and Minkowski, then

$$P^\nu \frac{d\,P_\nu}{d\eta} = 0 \,, \qquad p^\nu \frac{d\,p_\nu}{d\tau} = 0 \,.$$

Let us multiply Eq.(1) with p^ν

$$p^\nu \frac{d\,P_\nu}{d\eta} = p^\nu \frac{d\,p_\nu}{d\tau} = 0 \,.$$

But because generally $p^\nu(\tau)\,P_\nu(\eta) = f(\eta,\,\tau)$, then by taking derivative

$$\frac{d\,(p^\nu\,P_\nu)}{d\eta} = p^\nu \frac{d\,P_\nu}{d\eta} = \frac{df}{d\eta} \neq 0 \,.$$

We came to contradiction.

I.   HOW COMMON ARE MISTAKES?

Proof of Riemann hypothesis by Presumption of Innocence.

Let us consider the arXiv. Short search on Riemann hypothesis shows the amazing statistics: at least the 24 unchecked proofs of Riemann hypothesis validity, and only one not peer-reviewed disproof.

Yes, historically speaking, the probability of an incorrect proof (or dis-proof) in arXiv is $0 < p < 1$. And, therefore, having 24 proofs still would mean, that probability, that at least one proof is correct $P = 1 - p^{24} \neq 1$. However, for $0 < p < 0.8$ the $P > 0.995$, which is very close to 100%. But if the paper [4], becomes checked and debunked, then probability P turns to perfect 100% because of Presumption of Innocence: "nobody is considered wrong, until he is proven wrong". Without this principle all is in doubt, so there is no knowledge, which is not possible. The Presumption is not the Assumption.

The $\eta\, p^{24}$ is probability, that [4] is correct. Here $0 < \eta \leq 1$. Thus, from

$$\eta\, p^{24} = 1 - p^n\,,$$

where $n = 1$ is number of RH dis-proofs, one finds $p \geq 0.9061271851$, it means, that over 90% of papers in arXiv are wrong. Not bad, not bad. For comparison look in non-moderated site viXra below.

But then we still get at least $P = 90\%$ chance for correctness of RH.

The expected number of correct proofs must be over 1, so

$$z = N\,(1 - p) \geq 1\,.$$

We have $N = 24$, thus $p < 1 - 1/24 = 0.9583333333$. Therefore, $0.9061 < p < 0.9583$ and expected number of correct proofs is one or two $1 \leq z \leq 2.2$ out of 24. And the expected number RH correct dis-proofs is zero as $Z = n\,(1 - p) \approx 0$, which cirtainly can confirm the RH.

So, in arXiv can be 96% wrong papers. Notable, that amount of unknown stuff (called Dark Matter and Energy) in universe is also 96%.

A. viXra.org

The short look suggests $n = 6$, $N = 18$. So $0.9383 < p < 0.9444$, the expected number of correct proofs is $z = 1$, the expected number of correct dis-proofs is zero: $Z = 0.4 \approx 0$.

Therefore, the result on viXra matches the arXiv.

B.   Example of historic inconsistency

The formula (1) in [6] would coincide with the well-known experimental formula $\delta x\,\delta p > \hbar/2$ in the region, where $\delta p \to 0$, whereas from the formula (4) also holds $\delta x \to 0$, $x \to 0$, $p \to 0$. But since $\delta x\,\delta p > \hbar/2$ is in this region, then δx and δp can not both be very small. We came in contradiction, so the formula (1) does not contain region, where would be $\delta x\,\delta p > \hbar/2$. But latter was theoretically derived by Dr. Heisenberg. So, the formulas (1) – (4) do not contain as a limit value the Heisenberg's result.

The problem, essentially, is that the Achim is not "standing on the shoulders of Giant". The metaphor of "dwarfs standing on the shoulders of giants" expresses the meaning of "discovering truth by building on previous discoveries". This concept has been traced to the 12th century, attributed to Bernard of Chartres. Its most familiar expression in English is by Isaac Newton in 1675: "If I have seen further it is by standing on the shoulders of Giants."

1.   On energy Localization problem

By recalling the basic need to study problems in an inertial coordinate system (tetrad) [recall the demand for an inertial tetrad in the Galilean and Einstein Postulates of Relativity: in a non-inertial tetrad would be changed laws, but latter comes in conflict with Metrology], we found no problem with the local conservation of the most basic laws of physics. But others have faced major problems (cf. e.g. Refs. [8]).

The vector of rate in the local (ON) tetrad has

$$\frac{d\,B^{\hat\nu}}{d\tau} = e^{\hat\nu}_{\alpha}\,\frac{D\,B^{\alpha}}{d\tau}\,.$$

Thus, if $B^{\hat\nu}$ conserves in inertial tetrad, then

$$\frac{d\,B^{\hat\nu}}{d\tau} = 0\,, \qquad \frac{D\,B^{\alpha}}{d\tau} = 0\,.$$

But because

$$B^{\alpha} = e^{\alpha}_{\hat\nu}\,B^{\hat\nu}\,,$$

then the inertial tetrad is defined by

$$\frac{D\,e^{\alpha}_{\hat\nu}}{d\tau} = \frac{d\,e^{\alpha}_{\hat\nu}}{d\tau} + \Gamma^{\alpha}_{\beta\gamma}\,e^{\beta}_{\hat\nu}\,u^{\gamma} = 0\,.$$

4

The solution of this indeed can point to the Polar Star. More in [7], which solves Dark Matter, Navier-Stockes Millennium Prize Problem, and Energy Localization problem in General Relativity. Indeed, the known formula

$$T^{\nu\,\mu}_{;\nu} = 0$$

in inertial ON tetrad is the needed conservation of energy-momentum

$$T^{\hat{\nu}\,\hat{\mu}}_{,\hat{\nu}} = 0\,.$$

But latter means, that in inertial ON tetrad all the Christoffel Symbols are zero

$$\Gamma^{\hat{\alpha}}_{\hat{\nu}\,\hat{\mu}} = 0\,.$$

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[1] Nihilistic Quote: "we don't know what is out there; people might give an answer, but they are probably wrong" in Dr. Michio Kaku thesises:

"Science vs. God: It's The Collapse Of Physics As We Know It"

http://www.dailymotion.com/video/x2jbd7x

"The Universe Shouldn't Exist, Physicists Questioning Reality"

https://youtu.be/bu-puOwkVd8

[2] Krzysztof A. Meissner, Hermann Nicolai, "Standard Model Fermions and Infinite-Dimensional R Symmetries", Phys. Rev. Lett. 121, 091601 (2018).

[3] Stuart Firestein, "Ignorance – the critical driver for science" https://youtu.be/44eTY5pYCTQ

"Is Most Published Research Wrong?" https://youtu.be/42QuXLucH3Q

John P. A. Ioannidis, "Why Most Published Research Findings Are False". PLoS Medicine. 2(8): e124 (2005).

[4] JinHua Fei, Riemann hypothesis is not correct, arXiv:1407.4545 [math.GM] (Submitted on 17 Jul 2014).

[5] Wikipedia 2018 writes about academic Anatoly Logunov: "After studying works of Poincare, Lorentz, Hilbert and Einstein in great detail, Logunov and his colleagues developed the relativistic theory of gravitation (RTG), a theory of gravitation alternative to that of the general theory of relativity. RTG is constructed in the framework of the special theory of relativity.

It asserts that gravitational field, like all other physical fields, develops in Minkowski space"
A.A. Logunov, M.A. Mestvirishvili, "Relativistic theory of gravitation", Found. Phys. 16, 1–26
(1986).

[6] Achim Kempf, Gianpiero Mangano, Robert B. Mann, "Hilbert Space Representation of the Minimal Length Uncertainty Relation", Phys. Rev. D 52, 1108–1118 (1995), arXiv:hep-th/9412167

[7] Dmitri Martila, Virtual matter in Navier-Stokes Millennium Prize problem as Dawn of Q-Science, submitted to Canadian J. Phys. (2018).

[8] A. Einstein, "Hamiltonsches Prinzip und allgemeine Relativitätstheorie", Sitzungsberichte der preußischen Akademie der Wissenschaften (1916) 1111; C. Møller, "Further Remarks on the Localization of the Energy in the General Theory of Relativity", Ann. Physics **12**, 118–133 (1961); F.I. Mikhail, M.I. Wanas, A. Hindawi, E.I. Lashin, "Energy-Momentum Complex in Møller's Tetrad Theory of Gravitation", Int. J. Theor. Phys. **32**, 1627–1642 (1993); L.D. Landau, E.M. Lifshitz. The Classical Theory of Fields: Course of Theoretical Physics. Vol. 2, Butterworth-Heinemann, 1975.