Violation of energy-momentum conservation Laws

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Abstract

The math in the paper proves the existence of new force field (it might be called Dark Force, but there is nothing demonic about it). And the math proves the violation of the conservation laws (including energy violation). All this is in favour of the Flat Earth Society, because without conservation laws any model of Reality is safe and sound.
I. INTRODUCTION


Recently is found special Galaxy without Dark Matter, and so is concluded, what there is Dark Matter in cosmos. There is action of Dark Matter, but Dark Matter itself is not detected: it has no material interactions (no strong, no weak, no electromagnetic). A matter without matter interactions is not matter. If a matter curves spacetime (and produces gravity then), why then non-material Dark Matter curves the spacetime? It is miracle! It is divine miracle! Bound before your God! The Gravity is not material interaction, because it is not a force-field in General Relativity: the free falling body feels no-force but the weightlessness.

The Academic Science is built on the conservation Laws (latter are defined as divine-free, it means natural, mechanisms to control the Nature). Showing the violation of latter, one opens door to any models of the Reality, including the Flat Earth. But indeed, the action of Dark Matter and Dark Energy is without source: no Dark Matter was observed practically or theoretically. There are two kind of models: Flat Earth model (it uses God’s Grace to bent the lights and motions, to make objects appear to any observer as being far away), and the Round Earth. The people, who said “Earth is round” have said also “There is no Earth, because the Universe should not exist”. What is better: existing Flat Earth Model with God, or non-existing Spherical Earth without God? “Michio Kaku - The Universe Shouldn’t Exist” YouTube. The Academic Science destroys itself here: “Science v s God Its The Collapse Of Physics As We Know it” www.dailymotion.com/video/x2jbd7x

Would Dr. M.Kaku say in public, that the Reality can be described by the Flat Earth Model? No, he will fly like a bird out of Proud and Ignorant Scientific Community: no access to journal Nature again! So, the Dr. Kaku always will say: “Earth is round”, and
“the Universe should not exists.” The atheism is the self-denial. Academic Science is in self-denial. So, I have hope for those, who dare to say: “Earth is flat, and God has created it.”

Follow the hands: 1. If Earth is flat, then only God could have made it. 2. Because the God exists in Flat Earth Model, then the Universe must exists. 3. Dr. Kaku says, that Earth is round, and it should not exists.

A. The war with rude opponents, or Love your enemy, says Jesus

In most cases of rejection the decision over a manuscript makes only one person: an editor. He might get it all wrong, correct? It is not objective decision. I guess, even Newton was not immediately accepted: his book ”Principia” waited many long years in the library for its first reader. No way I ever get pass the bot in PRD! The programm demands affiliation with Institution. But I lost mine! I told Tartu University colleagues about Jesus!

Opponent on scientific forum: - Thank you for your research, I laughed at this.

Me: - Why to laugh? Are we in circus?! No. Thus, I ask for huge amount of respect. Moreover: you are human, I am human. Why am I defected human, but you are not?!

Opponent: - One does not ask for respect. One earns it. Imho you are not a defect human being. You are just a human being, nothing more, nothing less.

- If I am not defected human, then I am respected one. Correct? German: ”Ich bin nicht der Untermensch!” The Presumption of Innocence: everybody is like the God (and, thus, must be treated as like you would treat the God right from beginning), until opposite is proven. Not “respect must be earned”, but the disrespect “must be” earned.

- No. The default position is neutral; neither respect nor disrespect. I would treat no one like a god, no one deserves to be treated like that fictitious evil piece of shit.

- You are not neutral. Being neutral with stranger means to be respectful with 100 percent (otherwise the stranger will sue you). You have said word ”shit” in relation to my Religion. It is not being neutral. It is part of WW3 war, and you are on the evil side. Have you heard of Nihilism? The Nihilism is philosophy of deliberate lie. Nihilism’s true definition is “the art to lie without feeling shame”. For example, a nihilist knows, that $2 + 2 = 4$, but says: $2 + 2 = 7$. The atheism is expression of Nihilism. Hasn’t it Mister Donald Trump explained what “fake news” are? Therefore, even reading a Physical Review
paper, use your own brain. There is problem with peer-review: it has huge "human factor" in it. If a theory is sound and solid, but is hurtful for many people, it is being rejected. The more revolutionary the paper, the more chances to get rejected. The humans in the peer-review are almost all – nihilists, it means: truth haters.

Opponent: “Looks like some failed scientist are trying to misuse ResearchGate to spread their weird ideas.”. I would fail only, if I will arrive at hell. Russians never surrender! I can not make the paper fairly peer-reviewed. Without such review it fails the Scientific Method. Opponent: “So basically what you are trying to say is its all just pie in the sky wishful thinking, or nonesense, take your pick.” It is if you prefer negativism. I prefer positivism, thus I am saying: it is output of my brain, and my conscience is in piece with it. I think, that on this dirty world the results will not be (fairly) peer-reviewed. But I hope for the investigation in afterlife.

Do not call names (like “idiot”) your brother – me. All humans are blood relatives (look up in Wikipedia: Mitochondrial Eve and Adam.) So, by destroying me, you are destroying yourself. Self-destruction is sin. Do not be rude. I am a respectful one with papers in Physical Review E, European Journal of Physics B, etc. Opponent: “Your last regular paper is from 2006, the others are from 2001-2003. Everything after that is going more and more into the direction of complete nonsense. I’m not rude, whatever reputation you once had, you destroyed it by yourself.” Because in General Relativity the Universe is 4 dimensional, one can not destroy anything inside the Universe. My top academic activity (the glorious activity!) is in the 2006, 2001-2003.

II. ON THE ENERGY-MOMENTUM LOCALIZATION IN GENERAL RELATIVITY

A. Problem with Newton Physics

The two small test-bodies, which are near to each other do rotate around the Sun on the same radius from it. Thus, one can intuitively expect, that free-moving ship’s hull is tangent to the ring-orbit around the Sun. Inside the ship is expected the weightlessness, thus, the ship is inertial reference frame. Thus, the angular momentum of a body (e.g., an apple) inside the ship has the same angle of rotation axis to the orbit, and so, the Celestial
Pole of Earth shall not be practically motionless during one year cycle. But it is. So, one must use the General Relativity as more adequate description of Nature.

B. The General Relativity formalism

I saw nowhere the derivation of observable $\sim 26000$ years precession within General Relativity formalism. But let us fill this gap. In inertial coordinate system KS, which is co-moving with Earth, all the Christoffel Symbols $\Gamma^\alpha_{\beta\gamma}$ are zero. Thus, the covariant derivative turns to ordinary derivative (in relation to the co-moving coordinate system), thus the angular moment has same orientation to the KS. But how oriented the KS itself?

The direction (as a “line segment”) in our free KS is $L^\nu = (0, \Delta x, \Delta y, \Delta z) = \text{const}$ (but here we can take a constant vector or pseudo-vector with any physical sense). In curvature coordinates $L^\mu = e^\mu_\nu L^\nu$. Then, can we tell, that holds direction conservation

$$\frac{D L^\mu}{d\tau} = 0?$$

If Yes, then indeed holds $L^\nu = (0, \Delta x, \Delta y, \Delta z) = \text{const}$ along the KS system flight. Yes, it holds, because the thetrad vectors $e^\mu_\nu$ are all geodesics in an inertial KS system:

$$\frac{D e^\mu_0}{d\tau} = \frac{D e^\mu_1}{d\tau} = \frac{D e^\mu_2}{d\tau} = \frac{D e^\mu_3}{d\tau} = 0.$$ 

Here, e.g.,

$$\frac{D e^\mu_3}{d\tau} = \frac{d e^\mu_3}{d\tau} + \Gamma^\nu_{\mu\alpha} e^\mu_\nu u^\alpha,$$

where $u^\alpha$ is the 4dim-velocity of KS.

I have managed to find following inertial co-moving coordinates, which indeed show on the North Star area:

$$e^\mu_\nu = \left(4\sqrt{70}/35, 0, 0, -\frac{10}{\sqrt{7}}\right), \quad e^\mu_\nu = \left(\frac{2}{\sqrt{35}} \cos(w \tau), -\frac{\sqrt{5}}{2} \sin(w \tau), 0, -\frac{20\sqrt{14}}{7} \cos(w \tau)\right),$$

$$e^\mu_\nu = (0, 0, r, 0), \quad e^\mu_\nu = \left(\frac{2}{\sqrt{35}} \sin(w \tau), -\frac{\sqrt{5}}{2} \cos(w \tau), 0, -\frac{20\sqrt{14}}{7} \sin(w \tau)\right),$$

where $w = \sqrt{10}/100$, $M = 1$, $r = 10 = \text{const}$. 

5
C. Synge argument explains Dark Matter and Energy

In the known “Synge argument” (often used in traversable wormhole theory [9]) we fix the background spacetime and, thus, remains

\[ T^\nu_{\mu ;\nu} = 0 , \]  

(1)
as four matter-gravity equations. We can freely choose any spacetime anomalies, including Dark Matter, Dark Energy, and even smooth corrections for singularities (Big Bang, Black Holes). It is a great simplification: the Einstein has ten second-order partial nonlinear differential equations, but only four first-order differential equations are here. Without any need of hypothetical “exotic matter”.

We can write open the Eq.(1), like in [10]

\[ T^\nu_{\mu ;\nu} = \frac{1}{\sqrt{-g}} \left( T^\nu_{\mu} \sqrt{-g} \right)_{,\nu} - \frac{1}{2} g_{\nu \alpha ,\mu} T^{\nu \alpha} = 0 . \]  

(2)

According to “strong equivalence principle” the Nature should conserve the energy-momentum inside a small laboratory. Does it hold, if [10]

\[ (T^\nu_{\mu} \sqrt{-g})_{,\nu} \neq 0 , \]  

(3)
and from Gauss theorem [10] one concludes

\[ \int T^\mu_{\mu} \sqrt{-g} dV = \int (T^\nu_{\mu} \sqrt{-g})_{,\nu} dt dV + \text{const} , \quad \mu = t, 1, 2, 3 . \]  

(4)

Here

\[ \int (T^\nu_{\mu} \sqrt{-g})_{,\nu} dt dV = \frac{1}{2} \int g_{\nu \alpha ,\mu} T^{\nu \alpha} \sqrt{-g} dt dV \]  

(5)

So, for energy-momentum to conserve in the Limit \( \Delta V \to 0 \) holds

\[ \frac{\int g_{\nu \alpha ,\mu} T^{\nu \alpha} \sqrt{-g} dt}{T^\mu_{\mu} \sqrt{-g}} = 0 , \]  

(6)
or

\[ \int_{t_0}^{t_f} g_{\nu \alpha ,\mu} T^{\nu \alpha} \sqrt{-g} dt = 0 . \]  

(7)

Latter holds for any moment \( t_f \). Therefore

\[ g_{\nu \alpha ,\mu} T^{\nu \alpha} = 0 . \]  

(8)
Hereby the Synge Argument above makes metric independent from matter, so holds

\[ g_{\nu\alpha,\mu} = 0. \]  \hfill (9)

Otherwise energy-momentum local conservation, and thus the strong equivalence principle, is violated. From the Eq. (9) follows zero \( \Gamma^\nu_{\mu\alpha} = 0 \). And vice versa, because \( g_{\nu\alpha,\mu} = 0 \). So, is expected, that the inertial thetrad satisfies the Eq. (9). But we can check it using

\[ g_{\mu\beta} = g_{\nu\alpha}(x^\nu) e^\nu_{\mu}(B) e^\alpha_{\beta}(B), \]

where the coordinates of point B are held fixed during the Christoffel Symbols calculation (the result is expected to be zero). So, one can demonstrate, that in local inertial thetrad holds the energy-momentum conservation during all the proper-time of this inertial system:

\[ T^\nu_{\mu,\nu} = T^\nu_{\mu,\nu} = 0. \]  \hfill (10)

III. SOLUTION TO MILLENIUM PRIZE PROBLEM: THE INCONSISTENCY OF NAVIER-STOKES EQUATION

The Clay Institute has promised a million for solution to this problem. And, behold, we are giving it you! The answer to the problem of consistency is “No”.

A. What is curvature of spacetime we shall work in?

You may simply say: we consider perfect fluid in flat spacetime with Descartes coordinates \((x, y, z)\). But it holds for general case of curved spacetime, because of following: Consider the perfect fluid in an inertial thetrad. Then there \( \Gamma^\nu_{\mu\alpha} = 0 \), and so, e.g., \( g_{\nu\alpha,\mu} = g_{\nu\alpha,\mu} = 0 \),

\[ T^\nu_{\mu,\nu} = T^\nu_{\mu,\nu} = 0. \]  \hfill (11)

B. Calculation

The energy-momentum tensor of the perfect fluid [5, 8] is

\[ T^{\nu\mu} = (\rho + p) u^\nu u^\mu + p g^{\nu\mu}. \]  \hfill (12)
with $u^\nu u_\nu = -1$. Then the $T^{\nu \mu} = 0$ means

$$0 = u_\mu T^{\nu \mu} = \frac{d\rho}{d\tau} + (\rho + p) D, \quad (13)$$

where $D = u_\nu^\nu$ and

$$\frac{d\rho}{d\tau} = \frac{\partial \rho}{\partial x^\nu} u^\nu. \quad (14)$$

Let us denote the density current

$$J^\mu = -T^{\nu \mu} u_\nu = \rho u^\mu. \quad (15)$$

Then

$$J^\mu_\mu = \frac{d\rho}{d\tau} + \rho D, \quad (16)$$

and so from Eq.(13)

$$J^\mu_\mu = -p D. \quad (17)$$

But is known [5, 6, 8], that in flat spacetime $J^\mu_\mu = 0$. Therefore holds $p = 0$, which is violation of the fluid: it is not fluid, but dust! One can derive the same result for Navier-Stockes fluid, but because the perfect fluid is the case of Navier-Stockes fluid, then the Navier-Stockes fluid is already proven to be inconsistent.

This can be regarded as part of the solution of the more general problem: the fluid with viscosity [6], which is also showing $p = 0$ by another approach [7].

P.S. Case $D = 0$ would mean, that $\rho = \text{const}$ for any pressure $p$. But it is not possible for $p \approx 0$, because then we have dust with varying density. So, the $D \neq 0$, and, thus holds our result $p = 0$.

C. Discussion

To make the fluid states self-consistent one needs Dark Force (which can be switched on and off: $K^{\nu \mu} = K^{\nu \mu}(t, x, y, z)$): a force-field acting on the fluid (with energy-momentum tensor $\tilde{T}^{\nu \mu}$), hereby the force-field has no source (like the Dark Matter or Dark Energy, which is acting on the spacetime, has no detected source). Perhaps it would be so simple

$$T^{\nu \mu} := \tilde{T}^{\nu \mu} + K^{\nu \mu}, \quad T^{\nu \mu}_\nu = 0. \quad (18)$$
IV. CONSERVATION VERSUS REGULATION OF MATTER

As example is taken the Reissner-Nordström spacetime (mass $M$ and charge $Q \neq 0$) and radial falling of neutral (charge $q = 0$) test-body. The minimum reached distance is not zero ($r > r_m \neq 0$). The consequences are discussed. One can expect that past-directed geodesics will not reach the infinite past, or will be terminated in Big Bang singularity. The actual infinity, in any case, is not part of physical Universe map. Energy-momentum in GR does conserve locally. But at personal singularity is the breaking point: the body shrinks to zero, but zero-sized body does not exist.

Because there are singularities in General Relativity, latter hardly can be regarded as the predictable and conservative theory. Indeed, the vanishing of a body sometimes occurs at a finite curvature of spacetime. Velocity [8] is

$$ u^r \equiv \frac{dr}{d\tau} = -\frac{1}{r^2} \sqrt{B}, \quad (19) $$

where $B = E^2 r^4 - (r^2 - 2 M r + Q^2) r^2$.

Let us take the $Q = 1/5$, $M = 1/2$. The $Q$, $M$, $r$ are being measured in meters: they are “geometrised”. Then the zero initial velocity (then $B = 0$ at $r = r_0 = 20$) require the trajectory with

$$ E = \frac{\sqrt{9501}}{100}. \quad (20) $$

Therefore

$$ B = -\frac{499}{10000} r^4 + r^3 - \frac{1}{25} r^2, \quad (21) $$

which is negative in $r < r_m = 20/499$. This is termination of falling body. The study shows, that even photons are being terminated (in the Kerr-Newman spacetime). But termination is present also in Kerr spacetime, and also in naked singularity regimes [7].

The paper [2] modifies the existing theories to achieve global-scale energy violation (not the local scale “energy regulation” as we do here).

A. What happens to test-body?

The small dust-cloud has [8]

$$ \frac{d\rho}{d\tau} = -\rho D, \quad (22) $$
where covariant 4dim-divergence is $D = u^\nu _{,\nu}$ and, so, in Reissner-Nordström spacetime

$$D = \frac{3M r + 2r^2 (E^2 - 1) - Q^2}{r^3 u^r}.$$ (23)

In conclusion, the volume of dust cloud $V = m/\rho$ shrinks to zero as $u^r \to 0$ at $r_m$. Is shown, that the “geodesics deviation equation” agrees with this conclusion [7]. In our example above $D = 0$ at $r \approx 15 < r_0 = 20$. This means that the model shows non-trivial behaviour even in Newton Gravity approximation ($r \gg 2M = 1$).

The last point of trajectory shows the precisely zero volume of the body. Thus, the body does not turn to quantum particle. It simply vanishes. Because the position $r_m$ holds for any kind of falling body, the resistance of the material does not save it any second longer. And the tidal forces are finite: there is no curvature singularity there. The body simply disappears like by Creator’s decision: its size rapidly (all the length derivatives of proper time are infinite at $r_m$) turns to zero. Such event is not physical. We have found density regulator: any high energies and densities are being deleted (or bodies are being deleted or created: recall the dustification of the twin towers).


