Time and Continuum: Zenon Manifold

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Abstract

Ensuing from first principles, I suggest pre-geometric theory of spacetime [1], in which the apex of light cone ‘here and now’ is not modeled with dimensionless point [2], but with non-trivial mathematical object along null intervals, endowed with brand new structure, topology and dynamics (contrary to Robert Geroch [3]), and defined on so-called Zenon manifold [4].

The full manuscript is available upon request.

According to David Hilbert, an old French mathematician claimed that, if you suggest a new mathematical theory, it could not be considered complete until you have made it so clear that you can explain it to the first man whom you meet on the street. Let me try.

As told by Aristotle (Physics VI:9, 239b10), Zeno of Elea (490-430 BC) has formulated the famous dichotomy paradox: That which is in locomotion must arrive at the half-way stage before it arrives at the goal. In the drawing below, if we imagine B going back to A, then B will stop only at the ultimate limit B≡A, which denotes one single dimensionless point [2], and locomotion will be impossible. See Thompson’s lamp paradox and FI, pp. 15-16 in [1].

[0, ..., 1/16, 1/8, 1/4, 1/2, 1]

The only possible solution to the paradox above is to endow every point in [AB] with structure, topology and dynamics from the Heraclitean flow of events (p. 11 in [1]): replace B≡A with the elementary step of time AB depicted with Fig. 2c at p. 14 in [4]. The speculations about spacetime continuum [5] and causality [3] are unacceptable, and I suggest a perfect continuum of spacetime points as 4D events called ‘atoms of geometry’ (Fig. 3 at p. 7 and p. 12 in [4]) defined on a brand new pre-geometric manifold, dubbed Zenon manifold. In one sentence, I introduce Heraclitean time (p. 11 in [1]) “inside” the geometric points AB (read above) to solve the problem of continuum [5]: all points from the number line (p. 39 in [1]) follow the Heraclitean time (Fig. 2c at p. 14 in [4]) without any gaps whatsoever, not even by Gedankenexperiment. Now let’s delve into details [8].

1 Email: dchakalov@gmail.com. No permanent address. Download the latest version (zenon.pdf) from this http URL.
References and Notes


4. D. Chakalov, *Spacetime Engineering*. 2 April 2019, 16 pp., at this http URL.


7. D. Chakalov, *Hyperimaginary Numbers*. 7 February 2018, 26 pp., at this http URL.

8. Notice that the back bone of Zenon manifold — the noumenal ‘monad without windows’ (read (iii) at p. 6 in [6]) — is not explicitly present in the drawing above. It is a brand new notion of ‘zero’ which, just like the “big bang”, does not belong to the physical (or rather physicalized) spacetime (p. 3 in [1]). We may think of it (not “Him”) as ‘Platonic Universe as ONE’ and suggest physical theology (pp. 29-30 in [1]) and spacetime engineering (pp. 1-3 and p. 13 in [4]; pp. 8-10 in [6]), and also correct many errors in present-day point-set topology, set theory, and number theory. The current mathematical presentation of the Continuum [5] is ‘not even wrong’: recall Zeno’s dichotomy paradox above and read Erwin Schrödinger from 1935 (p. 2 in [6]) and Werner Heisenberg from 1958. The intact quantum world is perfect continuum, interpreted as Platonic Res potentia (dubbed John). It is still the first off mystery in Quantum Mechanics, known since 1911, thanks to Charles Wilson.

The Continuum is about Time: the elementary step of Heraclitean time AB ‘here and now’ (read above) is just the interface between irreversible past and Platonic potential future (Fig. 3 at p. 7 and Fig. 2c at p. 14 in [4]). Think of AB as the ancient Ouroboros with two dual states (p. 3 in Penrose-Norris Diagram), or the god Janus looking simultaneously at the past and in the future. We need new Mathematics, not some “primordial standard clock” (Xingang Chen). For if some “oscillating” physical stuff behaves like “primordial clock” of the scale factor, it must be defined by another physical phenomenon, ad infinitum: Turtles all the way down. Which is why we need the Aristotelian Unmoved Mover endowed with self-action: Der Geist bewegt die Materie (Virgil, *The Aeneid*, VI, 727). Needless to say, the physicalized explications or “jackets” from the universal self-action cannot be traced to any physical “turtle” whatsoever, and many (otherwise smart) people decided to call them “dark” (p. 14 in [4]). But again, the self-acting John is Platonic reality “before” light, like Macavity. It has exactly zero chance to exist as physical reality (p. 17 in [1]).

As of today, nobody is interested. I keep exploring my “carrot” (p. 1 in [4]), it works like a charm, better than a Swiss watch — read the ‘yellow button’ story at p. 15 in [7]. Again, the full manuscript, entitled Zenon Manifold, is available upon request (Matthew 7:6).

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Addendum

The two-page manuscript above was submitted to arXiv.org on 24 Apr 2019 09:46:09 EST. One day later, on 25 April 2019, arXiv Moderation wrote: “Our moderators have determined that your submission is not of plausible interest for arXiv. As a result, we have removed your submission.”

Let me show just one example of Platonic theory of spacetime, which, according to arXiv Moderation, “is not of plausible interest for arXiv.” Recall the Catch 22 paradox from Escher’s drawing hands at p. 3 in [4] and the crux of “GW astronomy”, pp. 15-16 therein. Here’s my conclusion (p. 12 therein):

But there is no direct coupling of matter and geometry. Instead, matter is “coupled” to its atemporal (p. 3) Platonic state called Res potentia (John). The latter is being localized in the physical world (local mode of spacetime) as ‘geometry’, once-at-a-time. Thus, matter is acting on itself via its Platonic state (John) in the global mode of spacetime, thanks to which matter becomes gravitized (Sic!) and acquires inertia due to the feedback (p. 11) from the entire Universe as ONE. In the same way the human brain is acting on itself. Only matter interacts with matter. Neither geometry (p. 4) nor parapsychological “ghosts” can.

There is no direct coupling of matter and geometry. As I explained previously (p. 3 in [6]),

... the left-hand side contains an entirely different, neither quantum nor classical, animal. Many people consider “intuitively clear” to interpret this brand new object as ‘pure geometry’ (at the limit \( \mathbf{B} = \mathbf{A} \), read above - D.C.), like the grin of the Cheshire cat without the cat (p. 15), but here’s the catch: “There is no spring or sink everywhere (emphasis mine - D.C.) in spacetime for matter (particles’ plus electromagnetic field’s) energy-momentum” (Zhaoyan Wu), which could be reserved exclusively for gravity, so that gravity could employ such “spring or sink” to interact with matter and fields, say, with a plastic bottle (p. 21) or with “a bead on a stick” (Richard Feynman). We face the same puzzle in the physics of the human brain: if the mind were able to interact with brain’s tissue, then the mind will be a bona fide physical field. But how could geometric things interact with matter?

Read the first excerpt above. Again, geometric things do not directly interact with matter. They just can’t. Matter is always localized in the irreversible past (Fig. 3 at p. 7 in [4]), whereas the gravitational energy is inherently non-localizable (MTW p. 467) and atemporal Platonic Res potentia (John) placed in the potential future, “just in the middle between possibility and reality” (Werner Heisenberg, p. 2 in [6]). According to GR textbooks, geometry acts on matter, telling it how to move (MTW p. 5), and hence the gravitized matter becomes self-acting. Why? Because we cannot see ‘the grin of the Cheshire cat without the cat’. We can see only one of Escher’s drawing hands (p. 3 and p. 10 in [4]), placed in the right-hand side of Einstein’s field equations, and it cannot obey the law of energy conservation (Hermann Bondi). If it could, gravity will become physical field. Thus, we need brand new notion of Time (read above) to unify GR and QM (Charles Wilson).

But this brand new approach to quantum gravity “is not of plausible interest for arXiv”, said arXiv talebans.

So be it (Matthew 7:6).
Regarding quantum gravity and cosmology [8], look at the so-called evolution equation (Sec. 3 in CEN.pdf): at every consecutive instant $AB$ ‘here and now’ (read above), the total energy of the physicalized universe is being nullified — **once-at-a-time**. The equation is still in symbolic form, pending the precise formulation of hyperimaginary numbers ($|w|^2 = 0$):

$$|w|^2 = |m|^2 + |m_i|^2$$

I also suggested spacetime engineering (pp. 1-3 and p. 13 in [4]; pp. 8-10 in [6]), with emphasis on particular type of natural healing known as Reiki. It is made of two Japanese words — Rei which means ‘Higher Power’ and Ki which denotes ‘life force energy’ (see ‘Platonic Universe as ONE’ [8] and pp. 11-12 in [6]). Reiki energy is not based on belief, faith, or suggestion. It cannot be guided by the practitioner, because it has its own innate wisdom to guide itself by its own **self-action** (read above): recall the Law of Reversed Effort (p. 9 and p. 38 in [1]). Everyone can master Reiki by learning (p. 43 therein), much like learning to juggle three balls in the air (p. 9 in [6]). All you need is **one click away**.

Happy Easter!

D. Chakalov
Easter 2019, 15:15 GMT

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Questions and Answers

Q1. What do you mean by ‘Platonic Universe as ONE’ [8]?

A1: Firstly, the entire Universe as ONE is not comprehensible with our cognition, because it is not relational — it includes, by definition, **absolutely** everything. The two drawings below are misleading, as they show some background dark area “outside” the universe, with respect to which we can **think** of ‘the boundary of the universe’. Secondly, the entire Universe as ONE is **atemporal** Platonic object, which acts as ultimate **cutoff** on the physicalized 4D universe (email from 3 August 2018 at p. 26 in [1]). It (not “He”) is **atemporal** Platonic object (dubbed “trunk” on p. 11 in [6]), like the state of Platonic photon “during” its flight, “after” it is emitted but “before” it is absorbed. In photon’s reference frame, it does **not** age nor move at all, being at null interval (Kevin Brown).

Ditto to the Platonic Universe as ONE shown with **red** vertical line in Fig. 2c at p. 14 in [4].
This red vertical line is the *atemporal radius* of the inflating balloon in Fig. 4 at p. 6 in [1]; read also p. 32 therein. It shows the *atemporal* “location” of the matrix (pp. 8-10 in [6]). Let me elaborate with the drawings below.

The dark “pizza” above shows the idea of ‘expanding universe’ as 2D surface of the *inflating balloon* (the drawing at right), after Arthur Eddington. You cannot see here the *nullified* *atemporal* radius of the inflating balloon nor its omnipresent center at the Beginning (John 1:1): the ultimate limit $B \equiv A$ replaced with $AB$ at p. 1 above.

The two drawings above are misleading, because they “show” the entire physicalized 4D universe *en bloc*, “outside of time and outside of space” (Stéphane Durand, 2:15-2:23). We stay always *inside* 4D spacetime, along the horizontal line of instantaneous state of the *moving slit* below (1+1-D spacetime), from Stéphane Durand (source at this http URL).

Thus, the fundamental time asymmetry from the 3D slit $\uparrow$ above is *precisely* nullified in the *physicalized* 4D local mode of spacetime — we end up with two symmetric “future pointing” and “past pointing” vectors (Piotr Chrusciel), and “there is no dynamics within space-time itself: nothing ever moves therein; nothing happens; nothing changes.” (Robert Geroch in [3]). If this were true, you shouldn’t be reading these lines, in the first place.

**NB:** To understand the 3D slit above, imagine taking snapshots from a dark room with camera equipped with flash, and then *assembling* the snapshots to see the illuminated room as 3+1-D movie reel (local mode of spacetime). There is no physical space nor time *between* the snapshots, and you will see a perfect spacetime continuum *rendered* by the
“speed” of light — the global Heraclitean time of the 3D slit up↑ above is “orthogonal” to the entire physicalized 4D movie reel (local mode of spacetime), as it follows the nullified atemporal radius of the inflating balloon, from its center B≡A at the Beginning (John 1:1).

In numerical relativity, on the other hand, people interpret the sliding 3D slit up↑ above as the physical time read with a clock, by taking the stand of some unphysical meta observer “outside of time and outside of space” (Stéphane Durand). Such “splitting” of spacetime is not even wrong — the resulting picture of ‘space + time’ resembles the consecutive slices of a pumpkin, along the time of your wristwatch; click the animated (.gif) image below.

It is a grave error to present the cosmological time of the 3D slit up↑ (read above) with the time read with your clock. Read Slide 12 in Quantum Spacetime.

Q2: Are you suggesting Universal Mind, by quoting Vigril ‘Der Geist bewegt die Materie’ (the Mind moves the matter)?

A2: No, I don’t. Read about the doctrine of trialism at pp. 11-12 in [6] and pp. 29-30 in [1], and the excerpt above. Notice the “location” of atemporal Platonic matrix at p. 5 above. It is self-acting Platonic matrix (p. 3 above), neither mental (Res cogitans) nor physical (Res extensa) stuff. Read p. 9 in [6] and check out Slides 9 and 10 in Quantum Spacetime. To see a demonstration of the evolution equation (p. 4 above), watch closely Wong Yi Feng at this http URL. It’s not “magic”. Any sufficiently advanced technology is indistinguishable from magic (Arthur C. Clarke).

Please don’t hesitate to submit your questions. If you wish to start from Mathematics, read p. 1 above and pp. 6-7 in [4]. If you decide to start from QM, read Erwin Schrödinger from 1935 at p. 2 in [6]. The intact Platonic quantum state (dubbed John) cannot have definite values, neither before nor after we measure it — quantum “superposition” of macroscopic classical states (see the cat states below) is an oxymoron (p. 14 in [6]).
There is no “collapse” in the quantum world (ibid., p. 3). If you nevertheless prefer to follow the current QM textbooks, try to produce some “quantum time operator” from the trajectory of a single quantum particle, as demonstrated by Charles Wilson in 1911. Check out also Slides 6, 7, 8, 9, and 10 in Quantum Spacetime, to fully understand the atemporal Platonic matrix (pp. 8-10 in [6]).

If you prefer to start from GR, don’t forget the bundle of inertia & gravitational rotation: read pp. 10-11 in [4] and p. 46 in [1]. By comparison, we know from QM that electrons do not revolve about the nucleus, like a pea travelling in a circle, and the same tallies to the “classically not describable two-valuedness” known as quantum spin (Wolfgang Pauli). In current GR textbooks, the torsion is eliminated by hand from the outset, and nobody knows how spacetime geometry could possibly “move” matter (MTW p. 5) to produce continuous macroscopic gravitational rotation. Also, nobody has tried to explain how the gravitational “field” was created, so that mass “there” – the whole universe – could determine inertia “here” (John Wheeler). The solution is very simple and counterintuitive: read p. 3 above.

Finally, let me quote from the abstract of my first paper ‘How to Bind Mind to Matter?’ from January 1990 (source at this http URL): “the description of the bond “between” mind and matter and the description of the topology of spacetime are, in essence, one and the same problem.” It took over twenty-three years to solve this immensely difficult problem, by suggesting a new theory of quantum gravity on 20 October 2013: read p. 3 above. Little did I know back in January 1990 that we need brand new mathematics and quantum gravity (read p. 4 above) to understand the physics of Life (p. 9 in [6]). To quote Erwin Schrödinger from 18 November 1950 (ibid., p. 2), every physical fact “definitely either is or is not”, whereas the atemporal Platonic quantum-gravitational Res potentia ‘neither is nor is not’. It is a different kind of reality (dubbed John), “just in the middle between possibility and reality” (Werner Heisenberg): read p. 2 above.

As an illustration of atemporal Platonic Res potentia, recall John Wheeler’s game of Twenty Questions (pp. 60-61 in gravity.pdf):

There had been a plot not to agree on an object to be guessed, but that each person, when asked, must give a truthful answer concerning some real object that was in his mind, and which was consistent with all the answers that had gone before. With only one question left, John Wheeler guessed: “Is it a cloud?” The answer was “Yes!”

The final answer ‘cloud’ was correlated with all previous answers, but it could not been physicalized from/by the Platonic idea of ‘cloud per se’ until the final question. But if you say ‘cloud’, you will not “collapse” the Platonic idea of ‘cloud per se’, which keeps its invariant meaning: try the experiment with your brain at p. 2 in [7]. Now just replace ‘meaning’ with atemporal Platonic matrix and read Slides 9 and 10 in Quantum Spacetime, and p. 13 in [4]. Every physicalized ‘jacket’ occupies one single “point” in the number line. All you need is one click away.

As to the physicalized, cloud-like manifestation of gravity as inertia-and-gravitational rotation (read above and p. 35 in [1]), the Bondi news, which determines the energy flux of gravitational radiation, cannot produce holomovement in the cosmos — read p. 3 above. You need the ultimate cutoff on the physical universe (Q1 at p. 4 above) to define the positivity mass conjecture – you cannot “install” GW mirrors at null-and-spacelike infinity.

To sum up, I offer three proposals (P) relevant to Mathematics and mathematical physics:
**P1.** New pre-geometric manifold, called Zenon manifold (p. 1 above), in which all geometric points are emergent physicalized points (‘jackets’ or ‘clouds’), whereas their common Platonic source does not belong [8] to its set of emergent physicalized geometric points. I also suggest corrections (explained in the full paper) to point-set topology, set theory, and number theory, and new numbers called hyperimaginary numbers ($|w|^2 = 0$).

**P2.** Every geometric point has internal structure “along” the three types of null intervals ($c^2 t^2 = r^2$, see Wikipedia), such that these dynamic points follow the global Heraclitean time without any gaps whatsoever (p. 1 above), thanks to which we end up with perfect 4D spacetime continuum (local mode of spacetime) made by ‘jackets’ or ‘clouds’ (p. 7 above).

**P3.** The global and non-relational Heraclitean time (p. 25), depicted with the motion of 3D slit up↑ (p. 5 above), is unobservable due to the “speed” of light ± c: p. 4 and p. 31 in [1]. For if it were physically observable, we will face ‘turtles all the way down’ (p. 2 above).

Corollaries (C):

**C1.** The so-called Russell’s paradox, revealed in 1899 by Ernst Zermelo, is not applicable to Zenon manifold — the unphysical Platonic world (p. 11 in [1]), which can organize any uncountable set of elements “into a whole” (Zusammenfassung zu einem Ganzen, Georg Cantor), does not belong to any element of its own set. The unphysical Platonic world (read [8] is the UNspeakable (p. 2 in [7]) manifestation of ‘absolute zero’ (not ‘zero of something’, p. 30 in [1]), known as ‘the monad without windows’ (Leibniz).

**C2.** Atemporal Platonic Universe as ONE (p. 4 above) and Platonic reality endowed with self-action (p. 3 above), presented with so-called global mode of spacetime spanned “along” null intervals [1]: spacetime engineering [4]. The atemporal Platonic world (John) is the common source of (i) its physicalizable eigenstates (e.g., ‘cloud’, p. 7 above) and in the case of gravity (ii) its physicalizable (non-tensorial) and gravitalized energy, momentum, and angular momentum (p. 7 above). Tensors are applicable only to a physical fact that “definitely either is or is not” (Erwin Schrödinger): no tensors in quantum gravity. For if geometry were physical fact, it could instruct matter/energy “how to move” only by some physical ‘total field’ (Gesamtfeld, Albert Einstein at p. 12 in [4]), which simply does not exist. There is no direct coupling of geometry to electromagnetic field in the first place, as we know after the unsuccessful efforts by Gunnar Nordstrøm in 1914: p. 3 above.

**C3.** To those who are only curious about how the Platonic matrix works (p. 7 above): recall the probability for emergence of life. As Fred Hoyle remarked (p. 9 in [6]), the random emergence of even the simplest cell matches the likelihood that “a tornado sweeping through a junk-yard might assemble a Boeing 747 from the materials therein.” Or recall the collision deep below the surface of the Atlantic Ocean of two nuclear submarines in February 2009 (p. 18 in [7]) — the chance of such correlation is perhaps much higher than the chance of successful correlation of your 100 billion neurons and 100+ trillion synapses right above your neck (ensuing from your prenatal brain), so that you can read these lines. This is the Platonic matrix in action. The list goes on and on.

To demonstrate the Platonic matrix, read the ‘dark room’ analogy at p. 5 above and recall how you create light in a dark room with a light bulb, which emits photons with rate, say, $1.8 \times 10^{20}$ photons per second (Slide 9 in Quantum Spacetime), depicted with blue dots in Fig. 1a below. All photons (blue dots) are identical ‘jackets’ or ‘clouds’ (p. 7 above) cast by the Platonic matrix of ‘photon per se’, depicted in Fig. 1b below.
Notice that EM radiation in Fig. 1a employs **background** spacetime continuum, thanks to which we can estimate the *rate* of app. $1.8 \times 10^{20}$ photons per second, whereas the ‘dark room’ (p. 5 above) is the Platonic **matrix** depicted in Fig. 1b below. The latter is **precisely** nullified ($|w|^2 = 0$) in the *physicalized* 4D (local mode of) spacetime (p. 31 in [1]) shown in Fig. 1a: read P1 above.

![Fig. 1a](image1.png)

![Fig. 1b](image2.png)

The first off challenge to canonical quantum gravity and the **problem of time** is to suggest some “quantized” spacetime which, unlike EM radiation on **background** spacetime at Fig. 1a, does not have *any* background whatsoever. The problem resembles painting a picture without any canvas (p. 17 in [1]). The “canvas” might be ‘something else’ (C.J. Isham and J. Butterfield) that could only be hidden between[ the “quanta” of gravitational “field”. Thus, Fig. 1a above would have to contain ‘something else’ that does not [8] belong to it:

[---one photon---]between[---one photon---]between[---one photon---]

But how to describe some entity (P1), which must not exist as physical reality (p. 5)? We have similar situation in QFT, as the question of how *virtual particles* exist “before” they show up and “after” they go back to the quantum *vacuum* is quietly swept under the carpet, despite the fact that its precursor is known since 1935, thanks to Erwin Schrödinger (p. 2 in [6]). The only possible solution, in my opinion, is to employ the Platonic **matrix**: read p. 3 above. As Bernhard Riemann stated in June 1854, “Either the reality which underlies space must form a discrete manifoldness, or we must seek the ground of its metric relations outside it, in binding forces which act upon it.” Just replace ‘outside it’ with the Platonic **matrix**. What happens locally, in the infinitesimal neighborhood of every geometric point, depends on the entire Universe as **ONE**, and **vice versa** (C2 above).

If you disagree, check out the alternative approach with “gravitons” suggested by Nobel Laureate Kip Thorne, and try his experiment aimed at creating “gravitons” at p. 16 in [4]. Read also p. 25 (last) in viXra:1712.0017vA. Sad but true.

Again, anything you were unable to understand will be entirely my fault. Should you have questions, please don’t hesitate to contact me by email.

But if you are **not interested** in the origin of Time and Continuum, as demonstrated with Zeno’s paradox of motion (p. 1 above) — no problem (Matthew 7:6). Have a beer instead.

As Max Planck pointed out in 1936:

*An important scientific innovation rarely makes its way by gradually winning over and converting its opponents: it rarely happens that Saul becomes Paul. What does happen is that its opponents gradually die out and that the growing generation is familiarized with the idea from the beginning: another instance of the fact that the future lies with youth.*

D. Chakalov
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Note on Relative Scale (RS) Spacetime

Since I am relativist, I do not accept absolute physical phenomena, such as the absolute length scale (Wikipedia). The “length” of 1 m and the “duration” of 1 sec are relational, not absolute, physical phenomena. Relative to what? Here’s the outline of relative scale (RS) spacetime (p. 5 in Gravitational Holomovement and Rotation), with updated references.

Consider two observers, Alice and Bob, at the length scale of tables and chairs, and a table with length 1 m in front of them. In RS spacetime, the matrix (p. 7) of the table will shrink it toward the Small and inflate it toward the Large. If Bob is co-moving with the table, he will always see the same invariant (Δs², Wikipedia) table in front of him. Relative to Alice (Rt = 1), Bob’s table will shrink to the size of a proton and smaller, while at the same instant (Sic!) the same Bob and the same table will inflate to the size of galaxy clusters and beyond, after tweaking Bob’s matrix with Rt ∈ (0, ∞). Yet the table will always have invariant length 1 m with invariant duration of app. 3.33 nanoseconds light-travel time (Fig. 9) to both Alice and Bob in their respective scales: macroscopic scale with respect to Alice, and microscopic/astronomical scale as seen by Alice looking at Bob. It’s all relative. Read the explanation of relative scale (RS) spacetime (pp. 4-5 in [4]) below.

The space entanglement ⇋ begins from the length scale of Alice (Rt = 1) and ends at the Universe as ONE (Rt → 0 & Rt → ∞). Read p. 5 and p. 13 in [4].

Who has ‘the right meter’ and ‘the right second’, Alice or Bob? Wrong question. Their RS ‘meter’ and ‘second’ are not observer-independent quantities, but flexible ‘jackets’ (cf. John’s jackets parable in CEN.pdf) determined by their atemporal Platonic matrix (p. 7).

In my opinion, RS spacetime is the only way to unite quantum theory with gravity, since they will be “separated” only to Alice, while Bob will be both “small” like a proton and “large” like a galaxy, and will EPR-like correlate the entire RS spacetime en bloc (p. 9).

In RS spacetime, gravity & rotation (p. 46 in [1]) is determined by the spacetime matrix that creates the entire spacetime (Slide 12), only applied locally (Sic!): shrink the RS metric to produce so-called “cold dark matter” or inflate the RS metric to produce “dark energy” — always in dynamic ‘tug of war’ equilibrium. See the Dipole Repeller (Vimeo).
Now look at Fig. 9 in *Spacetime Physics*, by E.F. Taylor and J.A. Wheeler (source here).

![Fig. 9. Latticework of meter sticks and clocks.](image)

The authors Edwin F. Taylor and John Archibald Wheeler explicitly acknowledged their metaphysical assumption that “every clock in the latticework, whatever its construction, has been calibrated (emphasis mine - D.C.) in meters of light-travel time” (source here).

This ‘calibration’ is the crux of RS spacetime. It is a global *atemporal* phenomenon, which is being exactly nullified in the physicalized 4D (local mode of) spacetime, once at a time (Fig. 1a at p. 9). If you look along the vertical motion of the 3D slit up↑ at p. 5, you will see different photoshop-like 4D layers, as both time and space are already being changed, “before” light (conversation with Stavros, p. 31 in [1]). Thus, we cannot see the global motion of 3D slit up↑ (p. 5) viz. the omnipresent luminiferous aether (called Macavity), as confirmed by the Michelson-Morley experiment. We cannot “turn around” and look straight at the atemporal Platonic reality, in Plato’s parlance, nor detect “online” the Heraclitean flow of events (p. 11 in [1]) — it only makes the physicalized “shadows” self-acting (p. 3).

As an example, look at Fig. 1a at p. 9 and the mechanism of creating light in Slide 9 in *Quantum Spacetime*, discussed previously at p. 8. The precise ‘calibration’ of creating app. \(1.8 \times 10^{20}\) identical photons per second is not a bona fide physical process, resembling, for example, flushing a toilet. In the latter case you can place all events on a timeline: before you flushed the toilet, the water was present in toilet’s reservoir, waiting patiently to be released down the pipe, with particular acceleration and gradually gaining speed at which it does its final job, then it takes some time to refill the reservoir with fresh water, etc.

Our case of creating physicalized photons is totally different — water is made of bradyons possessing real (not imaginary) non-zero rest mass, whereas photons are entirely different animals, as they do not exist as physical stuff ‘out there’, before they were created, and they do not “accelerate” either. In this sense, photons remotely resemble so-called virtual particles (p. 9). But where are they “located”? See Fig. 1b above and the equation at p. 4.

Yes, we have calibration of the entire latticework “in meters of light-travel time” (Fig. 9), and the scale-dependent ‘meters of light-travel time’ produce relative Large and Small: read p. 10 above. It’s all relative, as uncle Albert used to say.

Regarding the applications of RS spacetime, read the interpretation of the “expansion” of space at pp. 4-5 in [4] and the last paragraph at p. 5 therein, about spacetime engineering.

The crux of the issue is the universal self-action (see below) and the equation at p. 4.
Read p. 3 above and the references at p. 3 in [1].

Regarding the hypothetical Higgs field (Ian Low), which supposedly permeates the entire spacetime (Ivo van Vulpen) like some “invisible hobgoblins” (Lawrence Krauss), we are invited to believe that “fields that had no rest mass to begin with start to behave as though they were massive” (Viktor Toth). For example, the Higgs field imparted mass to the intrinsically massless W and Z bosons, thereby ‘slowing them down’ (David J. Miller).

Briefly, it is impossible to “recover” gravity by embedding such ‘retarded light’ hypothesis in the Standard Model: read about the so-called “gravitons” at p. 9. I believe the approach outlined at p. 3 and p. 4 offers the only possible path to quantum gravity and cosmology, and the only possible explanation of the “dark” manifestations of gravity: read p. 2.

However, the precise mechanism of universal repulsion, producing positive mass-energy (forget about the Higgs field), is still unclear. I suppose this phenomenon can create unlimited self-acceleration depicted in the second drawing above. If Baron Münchhausen used spacetime engineering (p. 9 in [4]), perhaps he could fly effortlessly in the air (NASA called it ‘propellantless propulsion’), along with his brave horse. To quote Robert Powell and Alejandro Rojas from the Scientific Coalition for UAP Studies (source here):

Calculated AAV [anomalous aerial vehicle] accelerations ranged from 40 g-forces to hundreds of g-forces and estimated power based on a weight of one ton ranged from one to nine gigawatts. None of the navy witnesses reported having ever previously seen military or civilian vehicles with these maneuvering abilities. Manned aircraft such as the F-22 and F-35 are limited to nine g-forces and the F-35 has maintained structural integrity up to 13.5 g-forces. Our results suggest that given the available information the AAVs capabilities are beyond any known technology.

True, we still do not have scalable applications of spacetime engineering, perhaps because we still do not understand Time and Continuum. Our ‘map’ (p. 16) is still at conceptual level, much like the one used by Christopher Columbus. But if he didn’t go west, with the insane hope to find shorter route to the Far East, how could he discover America?

D. Chakalov
May 28, 2019
Last update: January 15, 2020, 10:30 GMT
The Persistent Mystery of Gravitational Radiation

The so-called GW150914 is FRAUD: read p. 17 and p. 25 in viXra:1712.0017vA. In February 2016, over 1500 “experts” in General Relativity (GR) declared four outstanding discoveries: (i) “gravitons” (Q2 in gw_miracles.pdf) with mass app. $m_g \leq 7.7 \times 10^{-23}$ eV/c$^2$, (ii) “vacuum” spacetime in which the stress-energy tensor is zero $(T^{ab} = 0)$, (iii) binary black holes, and (iv) gravitational “waves” (p. 15 in gwa_rip.pdf). According to Kip Thorne, GW150914 were “by far the most powerful explosion humans have ever detected except for the big bang”, only it went off completely silent. Why? Because “a vacuum BBH merger does not produce any EM or particle emission whatsoever” (p. 9 in arXiv:1602.08492v4). It just can’t.

Recall that in present-day GR “it would be hopeless to look for exact solutions for the gravitational waves emitted by realistic astrophysical sources” (Michele Maggiore). Thus, the first drawing above is “derived” by pure imagination and wishful thinking. It’s FRAUD (p. 25 in viXra:1712.0017vA). Read also Gravitational Wave Miracles? (gw_miracles.pdf).

Q1: What phenomenon could possibly produce an exact 45° angle between $h_+$ and $h_x$ and keep it exactly fixed within the “superposition” of these oscillating metric fields, in such way that the latter will never conflate and intermingle? What could sustain the phases?

Q2: How could these “gravitons” be arranged in vacuum spacetime to keep the 45° angle between $h_+$ & $h_x$? For if the angle reaches 90°, the net effect from $h_+$ & $h_x$ will be zero.

Forget it. The motto of Kip Thorne et al. is ‘fake it until you make it’. BIG mistake. Bernard Schutz explained the insoluble problems of gravitational radiation 17 years ago, on 2 August 2002 (Schutz.pdf). In the first place, there is no physical structure in vacuum spacetime to produce any “angle”, similar to, e.g., the H-O-H angle in water molecule.
The only available theory of gravitational radiation, suggested by Hermann Bondi in 1961 (Josh Goldberg, private communication) and published in 1962 (Hermann Bondi et al., Paper VII), cannot explain the fact that we observe only one type of mass. It is impossible in principle to define the non-linear transport of energy — both emission (loss) and absorption (gain) — with the linearized approximation of GR (Jose Pereira), adopted also in Bondi’s hypothesis. The latter uses linear perturbations of the Minkowski metric and wrongly suggests energy conservation in “isolated system” at null infinity, just as Penrose did — wrongly — next year, in January 1963. Here’s the core problem in present-day GR.

Picture gravity as the shape of a mountain. The mountain is dead fixed and its shape does not “move” anywhere, just as the effects predicted by the Special and General Relativity, which are used to correct the GPS Navigation System (pp. 20-22 in [1]), are fixed on the “mountain”. Bondi’s news field produces changes of the stress-energy-momentum of the mountain due to gravitational radiation, which instruct the physical mountain how to move (MTW p. 5), and the gravitalized mountain becomes self-acting (p. 3) viz. “dark” (p. 2).

Why? Because the detector of Bondi’s news field can interact with only one of Escher’s ‘drawing hands’ (p. 3 in [4]), placed in the right-hand side of Einstein’s filed equations: the “mountain” as Res extensa, subjected to perpetual energy non-conservation (p. 3).

Geometry as potential reality or
Res potentia

Matter as physical reality or
Res extensa

Read p. 3 in [4].

There is no background ‘aether’ in GR (p. 9) to time the non-linear interactions of the two ‘drawing hands’ above, to determine which goes first, the mountain’s shape (Res potentia in the potential future) or the physical mountain (Res extensa in the irreversible past).

Thus, the genuine detector of gravitational radiation must simultaneously ‘feel’ both the Platonic state of the mountain, placed in the potential future, and the physicalizable, cloud-like mountain placed in the irreversible past. This is the crux of my proposal for atom of geometry possessing its own structure, dynamics, and topology (p. 17 in [1]). It replaces the false “one single” dimensionless geometric point $B≡A$ (p. 1), used also in current math textbooks to “define” closed and open intervals (Wolfram) and “derive” the murky idea of ‘limit’. See also the metric paradox at p. 3 in [1] and read again p. 3 above.

To sum up, here are the two major ideas: (i) the continuum of spacetime (p. 2) is modeled with the atemporal axis $W$ (p. 12) moving up↑ (p. 5), which is precisely nullified in the squared (Wikipedia) and physicalized 4D spacetime orthogonal to $W$, and (ii) the activity (C3) of the cosmological time arrow (p. 6) is powered by the self-acting Unmoved Mover.
Regarding the “vertical” motion of the 3D slit up↑ at p. 5: the entire physicalized world is being re-created and re-rendered by the “speed” of light (p. 11), at every consecutive 4D instant ‘here and now’, like re-created Phoenix Universe, with total energy being always “conserved”, that is, nullified (p. 4), once-at-a-time AB (p. 1), as read with your clock.

People still interpret mountain’s shape (geometry) as physical reality and try to present it with tensor in the left-hand side of Einstein’s filed equations, which is why this inherently non-localizable ‘drawing hand’ (p. 3 in [4]) must be nullified at every spacetime point (MTW p. 467), yet it remains “spread over” finite spacetime regions, as non-local gravity. Ditto to the quantum Platonic state, dubbed John [8]: it must be nullified at spacetime points as well, by wave function “collapse”, leaving only its non-local entangled “jackets”.

Back to gravitational radiation: I have been arguing, ever since 16 December 2015 (p. 14 in scam.pdf), that its detector must be endowed with self-action (p. 3 and p. 12) resembling the human brain. Mind you, the gravitational “waves” may look weird: watch Wong Yi Feng at the link at p. 6. All three types of mass (equation at p. 4 and drawings here) have to be included in the theory of gravitational radiation in order to understand gravity (p. 7) and its “dark energy” and “dark matter” (p. 2) in dynamic ‘tug of war’ equilibrium (p. 10). As a spin-off, we might avoid the deadly climate catastrophe: “At this rate, it’s going to take nearly 400 years to transform the energy system” (James Temple, p. 5 in [6]).

Finally, may I add a historical remark. Forty-seven years ago, in June 1972, after studying physics for little over five months (I started in January 1972 at age 19), I suddenly got the feeling that I’ve finally understood the so-called fictitious force in GR. It was a beautiful feeling, which lasted until the end of 1973, and of course never came back. But in June 1972, I was very happy that I can “understand” GR, and decided to ask a friend of mine (he was teaching theoretical physics at the University of Sofia) for help: could it be that gravity acts as “mediator” of the human mind on its brain? After all, gravity is not a physical field, so what if the brain is influenced by the metric field in GR, producing the neural correlates of mind and consciousness? The idea was seriously stupid, of course, yet many years later I found an unexpected similarity between the physicalized, cloud-like manifestations of gravity and the “action” of the mind on its brain: read p. 3 above. Namely, the mind does not act directly on its brain, just as gravity mediated by ‘geometry’ does not act directly on its physical source placed in the right-hand side of Einstein’s filed equations — see the drawing above. Due to the “speed” of light, we can observe only physical stuff in its past light cone, and can only infer that both the human brain and the gravitalized matter have become self-acting (p. 3), being influenced by some “dark” stuff (p. 2). Simple, isn’t it?

People “intuitively” disagree, yet decide to keep silent and ignore my theory, ever since January 1990 (p. 7). But suppose that the atemporal Platonic reality (see above) did not exist. Then, in the case of the human brain, you’re left with Marxist-Leninist philosophy, according to which ‘the brain is the hardware and the mind is its software’, and you have to locate some humongous super-computer in the human brain, producing “1,000 trillion calculations per second” (source here; read also HBP.pdf). In the case of GR, you have to discover some (infinitely large?) “field” offering stress-energy-momentum exclusively to gravity (Einstein called it ‘total field’, p. 12 in [4]), which is impossible, as we know after Gunnar Nordstrøm in 1914 (C2 at p. 8). What do you do, then? You decide to confine the influence of gravity (MTW p. 5) only to ‘bare spacetime’, that is, to “vacuum” spacetime with stress-energy tensor zero (T_{\mu\nu} = 0), as Kip Thorne and his collaborators did (read (ii) at p. 13), so that the “mountain” is dead frozen (p. 14), and you can happily use the linearized approximation of GR viz. linear perturbations of Minkowski metric in which “the gravitational field remains a powerless shadow” (Hermann Weyl, p. 9 in gwa_rip.pdf).
To summarize, the roots of Platonic theory of spacetime [1] are the proposals by Plato and Heraclitus (p. 11 in [1]), which require the atemporal reality (p. 11) of Res potentia — “just in the middle between possibility and reality” (Werner Heisenberg, read p. 7). It (not “He”) inhabits the potential future of the so-called atom of geometry, denoted previously with AB (p. 1). The latter has its own structure, dynamics and topology (p. 17 in [1]).

This is the alternative to the alleged “future pointing” and “past pointing” vectors, which are introduced by hand (Piotr Chrusciel at p. 5). We don’t like mathematical poetry [3].

![fig3](image3.png)

Fig. 3 at p. 7 in [4].

![fig2c](image2.png)

Fig. 2c at p. 14 in [4].

Let me zoom on the interface ‘here and now’ above, by “inserting” the atemporal global mode of spacetime (the ‘dark room’ at p. 5) “between” the infinitesimal AB.

![matrix](image4.png)

Drawing at p. 12 in [4].

At every consecutive interface ‘here and now’, the null interval AB is already completed, as in Fig. 3 above.

NB: Notice that the Platonic reality or Res potentia does not exist anywhere in the light cone (p. 2 in [6] and p. 7 in viXra:1712.0017vA). It only has physicalized point-wise (Sic!) footprints in the form of matter or Res extensa in the past (p. 14) — see Fig. 3 above. Were Res potentia some physical field, it will have to be fixed in some section of the light cone, and one could place it on a timeline, like the water in toilet reservoir (p. 11), which will inevitably lead to tachyons and violation of causality. Bad idea, to say the least.

My model of causality, dubbed biocausality in January 1990 (link at p. 7), is retarded relativistic causality: the atemporal negotiation of Escher’s drawing hands (p. 14) is inserted “between” the infinitesimal AB above (p. 1). The physicalized “cloud” (p. 7) as Res extensa is placed in the irreversible past in Fig. 3 above viz. at a “point” from the real number line shown with [AB] at p. 1 above. Hence the need for hyperimaginary numbers.

The best way to explain biocausality is with the problem to introduce ‘something else’ in canonical quantum gravity, which is the source of spacetime, yet is not ‘spacetime’ (p. 9).
Read the explanation of Zen by David Schiller (p. 17 in [7]): Before Zen, mountains are mountains and waters are waters; during Zen, mountains are no longer mountains and waters are not waters; after Zen, mountains are once again mountains and waters once again waters. If we place this sequence of events in the light cone (p. 16) and use the drawing at p. 9, it can be modified to insert Zen between ‘mountains and waters’.

[---mountains and waters---] Zen between [---mountains and waters---]

But how come mountains are no longer mountains and waters are not waters during Zen?

Zen is Platonic Res potentia (drawing at p. 14) outside the light cone (p. 16). Insert the non-event ]Zen between[ within the infinitesimal AB (p. 1), namely, place it at the potential future in Fig. 3 above. Voila. Now you have EPR-like correlations at macroscopic scale (drawing at p. 16), for example, 100+ trillion correlations per second in your brain (C3 at p. 8). This is biocausality, as of January 1990 (p. 7). Thirty years later, I claim that we can explore the gravitational radiation (p. 15): Fig. E at p. 30. Ignore it at your peril.

Again, once we introduce global non-relational Heraclitean time — you cannot step twice into the same stream, p. 11 in [1] — we are dealing with two forms of reality: matter or Res extensa in the past, and Platonic reality or Res potentia in the future, depicted with Escher’s drawing hands at p. 14 above. Due to the invariant “speed” of light, we can observe with light only the past, just as it takes roughly eight minutes to see the past state of the Sun (p. 31 in [1]). The photon itself is atemporal: read Kevin Brown at p. 4.

Thus, it is physically impossible (p. 16) to “see” the Platonic matrix (C3 at p. 8) with light. The latter shows only the irreversible past, whereas the Platonic Res potentia inhabits the atemporal radius of the ‘inflating balloon’ (p. 4) denoted with W at p. 5 and p. 21 below.

Many people are still ignoring my project, since January 1990 (p. 7), although they don’t hesitate to speculate about some “invisible” forms of gravity, which cannot be traced back to any physical “turtle” whatsoever, so they called them “dark” (p. 2). This “dark” agent is supposed to operate only on 3D space, as if the latter were some “absolute space” (Michal Chodorowski, p. 10 in [4]), like the grin on cat’s face without the cat (p. 15 in [1]).

My conceptual solution is spelled out at p. 10 above. People will probably complain that my evolution equation is still in symbolic form (p. 4), but what is the benefit of offering mathematical equation describing some “dark” mythical ghost that simply cannot exist? Just try the puzzle of Schrödinger time “parameter”, known since 1911 (Charles Wilson).

We belong to the interface ‘here and now’, like the ancient Ouroboros with two dual states (p. 3 in Penrose-Norris Diagram) and the god Janus looking simultaneously at the past and in the future (p. 2). We exist as perpetual ‘flashes of light’ (p. 5) denoted with AB (p. 1) – one-flash-at-a-time (Plato called it ‘shadow’, p. 11 in [1]) cast on a perfect continuum, without any gaps whatsoever (p. 1). This is how Time and Continuum are interrelated.

Thus, we can capture absolutely all points in [AB] (p. 1) with Finite Infinity (FI, p. 16 and p. 25 in [1]), as the “edge” of every point in [AB] is placed at its Platonic potential future, depicted in Fig. 3 above. There is no “boundary” of spacetime at the so-called ‘omega point’ (Ω = 0, Roger Penrose). We don’t accept the mathematical poetry of Penrose-Norris Diagram or the mathematical errors of their colleagues [3]. They simply cannot “install” GW “mirrors” at null-and-spacelike infinity and somehow “confine” the spacetime of the entire Universe to ‘isolated system’, so that “its total energy-mass stays constant”.
We need the so-called *evolution equation* in cosmology (p. 4), which re-sets (Sic!) the total energy-mass to zero — once-at-a-time.

Don’t ever say that you knew nothing about it (p. 9).

In January 2020, commemorating 30 years of my first paper ‘How to Bind Mind to Matter?’ (p. 7), I will release the results from the experimental verification of RS spacetime (p. 10) and ‘reversible elimination of inertial mass’ (REIM), currently labeled as AAV (p. 12). Read the Addendum below.

D. Chakalov
June 4, 2019
Last update: January 15, 2020, 10:30 GMT

Addendum

Today is Wednesday, January 15, 2020. Seven months ago, I uploaded this paper to viXra (viXra:1904.0315vG, 2019-06-22), and I’ve been waiting since 22 June 2019 for the reaction of my readers (p. 9). As stated at p. 1, the full (and perhaps quite boring) manuscript is available upon request. I zoom there on some issues in GR (p. 15), such as the Christoffel connection (Eq. 3.21, p. 60 in Sean Carroll) and the reason to “forget about the Christoffel symbols defining a tensor” (Edmund Bertschinger, p. 21). How come nobody mentions ‘the elephant in the room’ — the ubiquitous gravitational rotation (p. 7)? Bottom line is this: we cannot use tensors to describe the not-yet-physicalized gravity and inertia (C2 at p. 8).

As to present-day Quantum Theory, the mathematical presentation of ‘the quantum state’ (John) is completely unknown (p. 6): recall (i) Erwin Schrödinger (p. 7) and (ii) the famous Kochen-Specker (KS) theorem, by Helena Granström, at p. 2 in [6]. Regarding (i), Erwin Schrödinger explained the problem with using probabilities in QM on 18 November 1950: the quantum state does not possess ‘full reality’ — it is not context-independent state, like the Moon when no-one is looking at it. In GR parlance, it cannot be full-reality tensorial quantity (cf. Edmund Bertschinger above). If it were ‘full reality’, it will be like a dice in the air, before landing on a table to show one of its sides, with 1/6 probability. Or like a spinning coin (p. 14 in [6]). No way. As to Kochen-Specker (KS) theorem (ii), what kind of stuff are those 32% *Uncolorizable* (whatever)? If the *colourable* fraction “tends to 68% as N approaches infinity” (Helena Granström, arXiv:quant-ph/0612103v2, p. 2), the remaining 32% will be the *Uncolorizable* ‘monad without windows’ (Slide 13 in Quantum Spacetime). Sounds complicated, so let me explain the crux of KS theorem. Suppose you have three guys ($H_{dim} \geq 3$), who can show *simultaneously* either their right hands, or their left hands, or their two hands. If the three guys could simultaneously do it, the ‘colouring’ of KS sphere will be 100% complete. Only it isn’t, because it can’t. Suppose the first guy shows ‘two hands’, and at the same instant the second one shows ‘right hand’: which ‘hand’ will show the third guy? His ‘left hand’, correct? Wrong. The poor guy will not have any arms. He will be shifted to the 32% *Uncolorizable* above. But if the next time he shows any of his hand(s), one of the remaining guys will have to be shifted to the same 32% *Uncolorizable*.

Crazy, isn’t it? Yet in many instances QM and GR work very well, despite being essentially incomplete theories. The situation resembles the ‘yellow button’ story at p. 15 in [7]. We don’t know how it works and can only try to understand its mechanism (pp. 41-46 in [1]).

Let me first explain the puzzle with the *non-tensorial* Christoffel symbols denoted with $\Gamma$. 
Suppose you are located in London, and speak over the phone with a friend of yours in Paris. It’s a clear night and you see the Moon. You ask your friend if he can see the Moon, and he says — yes, I can see it, too. Which means that the Moon has ‘full reality’ (p. 18) and its state can be described (if needed) with a tensor. But if only you can see the Moon from London, whereas your friend in Paris (with different coordinates) cannot, we have a non-tensorial puzzle. This is the mathematical “answer” by classical GR to objects that are ‘potential reality’ (p. 15) — classical GR can handle only ‘physical reality’ placed in the past (p. 14). Here’s a remote analogy: if the only tool you have is a hammer, everything will look to you like a nail. So, if you’re dealing with a stone, your “answer” will be that it is some “non-nail” stuff. There’s nothing more you could say about such non-nail stones.

There is no physical field offering stress-energy-momentum exclusively to gravity (p. 15), and GR “answers” this fact by camouflaging the stress-energy-momentum from geometry (MTW p. 467) as non-tensorial object (p. 15) — it may show up in London, but not in Paris. Otherwise gravity will be bona fide classical field, and there could be conservation of the total energy. Instead (Hermann Bondi), we have perpetual energy non-conservation (p. 3).

Not surprisingly, the most powerful phenomenon, driven by non-tensorial gravitational energy (MTW p. 467), cannot be captured with classical GR, and many (otherwise smart) people called it “dark” (p. 2). Why “dark”? Because it cannot be traced to any physical ‘turtle’ (ibid.) that can emit or reflect light. If it could, gravity will be bona fide classical field, like electromagnetic (EM) field described with tensors. Simple, isn’t it?

Now look at the alleged “accelerated expansion” of the Universe (Nobel Prize in Physics 2011) depicted with the red lines below, and with the balloon metaphor (p. 5) depicted in the drawing at right.

Do you smell rat? The “accelerated expansion” of space does not affect the “orthogonal” vector $n^\uparrow$ in the left drawing above, introduced in numerical relativity with the idiotic “splitting” of spacetime into ‘space + time’ (p. 6). We end up with the fictitious “absolute space” (Michal Chodorowski, p. 17), which is now subjected to “accelerated expansion”, as depicted with the red lines above and with the balloon metaphor (p. 5) at right above. People look at the red lines with increasing length and wrongly claim that “more space” has been “created”, as if they evaluate digital images build up with identical finite-size pixels (p. 17 in [1]), and now these images are expanding, hence capturing “more space”.

![Diagram of accelerated expansion](image-url)
Well, if you use Archimedean topology (p. 16 in [1]), you will use metric and hence will be able to count the individual red pixels in all red lines above, one by one, or to calculate them by dividing the length of the red lines by the length of one red pixel. For example, in the so-called loop quantum gravity, mathematical physicists have “calculated” their red pixels, roughly $10^{99}$ “atoms of volume” in every cubic centimeter of space (Lee Smolin).

However, it is impossible in principle to count the spacetime “points”, because they are uncountably infinite (p. 18 in [1]). Unless of course you’re Chuck Norris or Roger Penrose.

NB: There is no metric in the pre-geometric (P1 at p. 8) realm of atemporal Platonic Res potentia (p. 14). There is no water between two molecules of water, yet the “water molecules” (Res extensa in the past, p. 16) must be separated by ‘something else’ (p. 9). Otherwise there can be no motion (p. 1) and hence no Time and Continuum (p. 2).

For example, look at the three “water molecules” denoted with AB in my clumsy drawing at p. 16: the stuff marked with wave line between them (p. 17) is the entire Platonic Universe as ONE (C2 at p. 8). If you wish to place the latter in the light cone, you may need “transcendent tachyon” (Erasmo Recami), which should be at absolute rest (notice the red line there), being absolutely everywhere in no time, with infinite speed. Instead of fictional “tachyons”, I use the proposals by Plato and Heraclitus (p. 11 in [1]) and eliminate all “gaps” in the spacetime continuum (p. 5), made by ‘something else’ (p. 9).

The alternative to the alleged “expansion” of the physical world (p. 19), based on the so-called relative scale (RS) spacetime, is explained at pp. 4-5 in [4] and at pp. 10-12 above. Let me go back to the predictions of RS spacetime, mentioned in June last year (p. 18).

If you see people flying in the air (p. 9 in [4]), don’t call it “magic” (p. 6). Read p. 15 and pp. 41-46 in [1] instead. You have to get a grip on the Platonic matrix (C3 at p. 8), which controls the not-yet-physicalized gravity and inertia (C2 at p. 8), and follow the Law of Reversed Effort (p. 9 in [1]). It is a very simple skill, like juggling three balls (p. 9 in [6]). And you will never fall on the street, just as you won’t fall on the floor while walking on it. Don’t drink and fly, of course! 😊

Watch ‘Spacetime Engineering 101’ (text version below) from 15.01.2020 at this http URL.

January 15, 2020, 10:30 GMT
Spacetime Engineering 101

This is the symbolic presentation of spacetime engineering (p. 5 in [4]): you only have to swing the carrot (the potential future, C2 at p. 8) toward your desired destination in the future, and the donkey (p. 16) will carry you and the cart there (p. 4).

But where is the potential future? It is Platonic reality, called Res potentia (p. 16), which (not “Who”) lives along the (hyperimaginary) axis W depicted in Fig. A and in Fig. B below.

The axis W in Fig. A is shown in the drawing at p. 5. The two black dots in Fig. B denote two consecutive 4D events ‘here and now’, which have only footprints in the irreversible past (Fig. 3 at p. 16) in terms of geometric “points” from the real number line shown with [AB] at p. 1. Also, the two black dots in Fig. B are light-like intervals with zero duration. As explained previously in Wikipedia, “in a light-like interval, the spatial distance between two events is exactly balanced by the time between the two events. The events define a squared spacetime interval of zero (s² = 0). Light-like intervals are also known as “null” intervals.” Notice the importance of the (hyperimaginary) axis W “erected” at light-like intervals — it is both along the radius r (Fig. B) of the inflating “balloon” (p. 5 and p. 19) and orthogonal to it. Read about the normal and tangential directions at this http URL. It will be difficult to overestimate the importance of this mathematical fact (Kevin Brown).

Yet mathematical relativity cannot suggest any ideas about the origin of Time: What is pulling up↑ the entire universe en bloc (Fig. A) and simultaneously “inflating” it (Fig. B)?
We know from observational cosmology that this immensely powerful phenomenon cannot be traced to any physical ‘turtle’ (p. 2), which can emit or reflect light (p. 19). Secondly, can we nevertheless access it with our brains (C3 at p. 8), to ‘swing the carrot’ (p. 21)?

The answer offered to the first question goes back to the Unmoved Mover by Aristotle. He suggested a new type of ‘limit’ in the infinite regress argument, namely, “there cannot be an infinite series of moved movers. If it is true that when A is in motion there must be some B that moves A, then if B is itself in motion there must be some C moving B, and so on.” This series cannot go on forever — it must come to a halt/limit in some object that is the universal cause of motion and Time, because it (not “He”) is moved only by itself — the Unmoved Mover, depicted at p. 12. Thus, the final Unmoved Mover cannot belong to its set of ‘moved movers’ (turtles, p. 2), which leads to the Zenon manifold (P1 at p. 8).

The second question can be reformulated in the following fashion: can we access the final Unmoved Mover with our brains? If the entire Universe is designed like a Brain [6] — maybe we can, provided that we also include the proposals by Plato and Heraclitus (p. 11 in [1]).

Let me offer a simple experiment, which you can perform with your own brain (p. 2 in [7]), to show how your brain can act on itself, thereby utilizing the Unmoved Mover. Otherwise you’ll need some super computer in your brain (p. 15), or parapsychological “ghost” (p. 3). Have you asked yourself, what could be the physics of the human brain (p. 7), so that it can be equipped with mind, consciousness, memory, volition, and all the rest labeled with Res cogitans? If you don’t accept Marxist-Leninist crap (p. 15) nor paranormal ghosts (p. 3), read the story from June 1972 at p. 15 and p. 8 in [6], and then try the experiment below.

Consider the meanings explicated with the four sayings below:

1. You can’t hide a piece of broccoli in a glass of milk.
2. Who has no horse may ride on a staff.
3. Don’t wear polka dot underwear under white shorts.
4. Faute de mieux, on couche avec sa femme.

If you can understand these sayings, which of them presented similar meanings? My answer: 1 & 3 and 2 & 4.

Surely all words, in all languages, must be somehow “encoded” in the human brain, but not their meanings. The latter (not the encoded words) are invariant in all human brains, despite the inevitable structural and neural differences between these brains (HBP.pdf).

But here we’re facing another phenomenon: the action on your brain, by your brain, to reach the answer 1 & 3 and 2 & 4 above. You “operate” with some UNSpeakable cognitive vacuum, from which you can freely, upon your free will, pull out particular ‘meanings’ in all four cases above, examine them, and deliver the answer. This action is exactly brain’s self-action: your brain is acting on itself, thereby utilizing the Unmoved Mover (p. 21).

Why? Because, on the one hand, you brain does keep “encoded” neural correlates (Sic!) of all words in the four sayings above, but on the other, your brain does not interact, in any way, shape or form whatsoever, with the atemporal UNSpeakable cognitive vacuum. Why not? Because it can’t. Your brain cannot access some sort of “superposition” of all possible knowledge stored in the UNSpeakable cognitive vacuum, including the one pertaining to ‘the unknown unknown’. This is what makes it UNSpeakable (p. 18). Your brain operates only with/by the neural correlates acting on themselves, thanks to the Unmoved Mover.
These self-acting ‘neural correlates of consciousness’ (NCC) are EPR-like entangled (Henry Stapp), exhibiting wave-like holomovement. (QM can offer only one single glimpse at it, because the wave function must be collapsed in the inanimate macroscopic world, p. 15.)

Again, the origin of biological entanglement is unspeakable and uncolorizable (p. 18), which leads to the Zenon manifold (P1 at p. 8). Thus, we can observe self-acting NCC only. By the same token, the ‘closed room’ in Fig. A above is indeed closed system, which is why it is also endowed with Aristotelian self-action. Ditto to the non-localizable origin of gravity, which must be nullified as well (p. 15), leaving only its non-local and self-acting ‘clouds’ (p. 7). This is the price to pay for metric theory of gravity. As Wolfgang Rindler noticed (p. 22), “The equality of inertial and active gravitational mass then remains as puzzling as ever. It would be nice if the inertial mass of an accelerating particle (Fig. A above — D.C.) were simply a back-reaction to its own gravitational field, but that is not the case”. The universal ‘back reaction’ (Dennis Sciama) is highly non-trivial phenomenon (p. 7), as every object ‘thinks globally and acts locally’ (C2 at p. 8).

If you disagree, you have two alternatives to explore: either Marxist-Leninist crap (p. 15) or paranormal ghosts (p. 3), whichever comes first.

I prefer to postulate a dual Cognitive-and-Quantum Vacuum (CQV) as the field of spacetime engineering. To understand the phenomenon of duality in the doctrine of trialism, read pp. 11-12 in [6], and also p. 8 therein. We are not dealing with some “magic” (p. 6 and p. 12).

Nowadays people speculate about negative mass (Wikipedia) and negative pressure. They imagine a pair of positive and negative mass, and claim that the resulting runaway effect (see the drawing below, from Robert Nemiroff at pp. 13-14 in [7]) will be “anomalous”.

However, the speculations about negative energy densities are not applicable to Platonic theory of spacetime (p. 16). The irreversible past in the atom of geometry (Fig. 3 and p. 17 in [1]) contains only positive mass: any time we look with light at the past, Macavity has already disappeared (p. 17), as it has exactly zero chance to exist as physical reality. We can only notice that the physicalized reality has been acting on itself, thereby utilizing the Unmoved Mover (read above). Hence the need for a brand new theory of gravity (p. 15). Just don’t call gravity “dark” (p. 2). The medium of GWs to travel through is not “dark”. It is an instantaneous global phenomenon, felt by all objects with mass in the Universe, all at once, thanks to which every object ‘thinks globally and acts locally’. Here’s an example.

Did you notice the “dark space” around the “elevator” as ‘closed system’ in Fig. A above? It is pictured as “dark”, because it exists between light quanta in Fig. 1a at p. 9. People call it “vacuum”, but it does not exist as ‘physical reality’ (p. 11), as we know after the negative result from the Michelson-Morley experiment. In other words, the omnipresent luminiferous aether, called also Macavity, is atemporal Platonic reality (p. 16). Thus, you may not interpret EM radiation as ‘light waves’ travelling in any physical medium (Zen).

As Justin Christensen explained (December 26, 2017), “waves travel in water because the water molecules pile up and then push other water molecules out of their way as they try to move downward under the force of gravity, and sound waves move in solids, liquids, and
gasses because the atoms in these act like springs that oscillate when compressed or stretched from their equilibrium position. All of these examples only work because there is something there for the waves to travel through. If you take away the medium there are no waves.” Yet we “take away the medium” — there is no physical absolute reference frame — and nevertheless observe EM radiation with invariant speed. In short, read p. 5 above and keep in mind that every photon (p. 8) is Wheeler’s ‘cloud’ (p. 7). Simple, no?

These are the basic basics of spacetime engineering, in just sixteen pages (pp. 16-31). But there are many references and links, which you should follow and study thoroughly. Point is, there is nothing “mysterious” here, and you don’t need any special “gifts” either. It is all about learning (p. 43 in [1]), like learning to juggle three balls in the air (p. 9 in [6]). Once you understand the Platonic theory of spacetime, your brain (Sic!) will develop the mental image from the Platonic matrix (C3 at p. 8) and you will be practicing spacetime engineering, too (p. 20).

Watch the demonstrations of ‘reversible elimination of inertial mass’ (REIM), released to the public on 15 January 2020, at this http URL. The first demonstration involves an apple, which can fall from an apple tree, as observed by Isaac Newton. If you place the same apple on the driving seat next to you in your car and press the accelerator, the apple will “push back” the seat due to its inertia: \( (g \downarrow) = (ma \rightarrow) \) (see the drawing at right below).

\[
(g \downarrow) = (ma \rightarrow)
\]

See Fig. A above

\[a=g \]

Adapted from Wikipedia

But the two non-relational “directions” along \( W \) in Fig. A and Fig. B above, \( \text{up}^\uparrow \) (p. 19) and \( \text{←sideways→} \) (“dark”), are precisely nullified in the physical world, leaving only their non-local 4D footprints (p. 16). As explained by Laszlo Szabados, “the gravitational energy and the spatial stress cannot be localized at a point, i.e. they suffer from the ambiguity in the gravitational force above.” I believe have offered the solution to this “ambiguity”.

Now look at the REIM equation below (p. 20 and pp. 41-46 in [1]):

\[
(g \downarrow) = (ma \rightarrow) \approx 0. \quad \text{(Eq. 1)}
\]

The gravitational and inertial mass are not exactly zero (Eq. 1), but are asymptotically approaching zero (e.g., “positive energy density of about \( 6 \times 10^{-10} \) joules per cubic meter”, John Baez). Can we tweak (reversibly, of course) their atemporal CQV state (p. 23), just “before” it will become a physicalized ‘cloud’ (p. 16)? Can we ‘swing the carrot’ (p. 21)?

Yes we can. Have you noticed that your thoughts do not have inertia? You can “accelerate” them instantaneously, like AAVs (p. 12). So, take this apple (app. 230g) and let it become — effortlessly — an CQV “thought”. This is REIM, not some weird eldritch “magic” (p. 6).
Taking the risk to be very boring, I will again stress that the self-acting activity of the human brain (p. 22) — the brain acts on itself, by itself (p. 3) — is “counterintuitive” due to the nature of the new pre-geometric manifold, called Zenon manifold (P1 at p. 8): the cognitive-and-quantum vacuum (p. 23) does not belong to the set of its non-denumerable explications, both cognitive (Res cogitans) and neural (Res extensa), which is why this dual CQV (dubbed ‘trunk’, p. 11 in [6]) is UNSpeakable (p. 22) and UNcolorizable (p. 18). The way we “operate” with CQV is indeed paradoxical. In the context of ‘John’s jackets’, we are only EPR-like entangled “jackets” (p. 2), both mental and physical ones (p. 22).

Let me compare the way we “operate” with CQV with fishing at a lake: you sit at the lake and have caught many fish, which you dump in a bucket next to you. Simple and clear. Now try to imagine the following situation: you are always ‘sitting at the lake’, only you can never see, touch, smell, or in any other way detect the lake itself. Why not? Because it is ‘vacuum’. Also, you always release every fish in your bucket back to the lake (vacuum), yet you can always pull it out of the lake and drop it in your bucket, anytime you need it (memory recollection). Then you notice that all real fish in your bucket (not the “virtual” ones in the “nullified” lake) are correlated and have become somehow non-local (p. 15), being directed by their atemporal Platonic matrix (C3 at p. 8), for example, by the matrix of creating identical photons (p. 11) or protons (Slide 10 in Quantum Spacetime). Capiche?

Thus, all Platonic matrix are “embedded” in each other, being ‘both one and many’, like the Leibniz monad. They build the Platonic memory of the Universe. For example, suppose you are slicing onion with a kitchen knife and accidentally cut your finger — you put plaster on it to heal faster and after a few hours it won’t bleed, and on the next day your skin will recover completely. Looks trivial, but recall that there is no ‘skin computer’ and custom-made software application nor some ‘skin ghost’ (p. 23), which is “inserted” in every skin cell to execute such process, just in case you cut your finger. It is the Platonic matrix of your body, which acts as body’s memory: if A, then B. Ditto to the entire ‘Brain of the Universe’ (p. 22). As John A. Wheeler stressed (MTV p. 1215): “No acceptable explanation for the miraculous identity of particles of the same type has ever been put forward. That identity must be regarded, not as a triviality, but as a central mystery of physics.”

There is no “uncertainty” in the quantum world. None. God casts the matrix, not the dice. Der Herrott würfelt nicht, wirklich (p. 26 in [1]). Dead matter makes quantum jumps; the living and quantum-gravitational matter is smarter. Read p. 16 above.

The second REIM demonstration is a bit similar to the one by Steve Freyne, also in London. It required permission and logistical support by the municipal authorities, coordinated by a number of journalists at BBC Four and other individuals (pp. 4-5 in [6]). First, some history.

On 16 July 1997, I tried to address the UNdefinable Matrix (p. 5 and p. 26 in [1]): is it real, or not? Or perhaps both, being some kind of cognitive-and-quantum vacuum (p. 23)?

But what if nobody cares? My first paper from January 1990 (p. 7) didn’t spark any interest, perhaps because it was too philosophical. But look at the bold facts, both physical and mathematical, about the so-called GW150914 at p. 13: how come nobody is interested?

The only reason to go public is to trigger professional discussion of the origin of gravity and inertia (p. 7), including the gravitational rotation (p. 11 in [4] and pp. 34-36 in [1]), and expose the insoluble problems with the so-called GW150914: was it some Biblical “miracle” or plain FRAUD? Have you seen pink unicorns dancing with red herrings? That’s GW150914.
But here’s the point: I need financial support to organize a large-scale REIM demonstration in London. Don’t want to advertise some beverage, like Steve Freyne, or new cat food, say. Moreover, I have to convince all administrative officials and journalists, who can organize such demonstration, that I am not offering some “street magic” to entertain the tourists in London, but a groundbreaking theory of the origin of gravity (p. 3), which can be accessed by every human brain. Nothing more, nothing less. How can I do that, in under 5 minutes?

It’s very simple. All effects of gravity, including gravitational rotation (Richard Feynman), are mediated by geometry — the grin of Cheshire cat without the cat (p. 15 in [1]). Thus, people offer two alternative options to “explain” the action of geometry on its material source (MTW p. 5): (i) either gravity is some physical field, like electromagnetic (EM) field, or (ii) gravity acts on matter like some paranormal “ghost” that acts without being acted upon. My solution is totally different (p. 3 and p. 15). Let me compare it to option (i).

For example, the origin of pizza is ... pizza. Suppose you order a pizza, which is delivered at your doorstep, and then you bring it in your kitchen. The pizza you have in your kitchen, and the pizza cooked previously in the restaurant, are identical, so if you think of gravity as a pizza, you must conclude that the contribution of gravity to your lunch (the right-hand side of Einstein’s field equations, Mendel Sachs) is exactly the same ‘pizza’ that was cooked in the restaurant earlier. If true, gravity will be some physical field (i), and the conservation of the total mass of the system ‘the pizza shop & your house’ will not be violated. It is like withdrawing cash from ATM (p. 3 in CEN.pdf). It may look simple and “intuitively clear”, only there is a problem: this is not the case chosen by Nature (p. 16).

Namely, the shape of a pizza is like the shape of a mountain (p. 14). The ‘shape’ has its source — the physical pizza in the right-hand side of Einstein’s field equations — yet the ‘shape’ can feed back (p. 14) its physical source and instruct it how to move (MTW p. 5), by injecting stress-energy-momentum (Robert Wald) into the gravitized pizza/matter. It should be agonizingly clear that the classical physics cannot explain the gravity ⇆ matter conversions (p. 15) and their “waves” (p. 13): read p. 21 in [1]. Forget about (i) and (ii).

To sum up, the origin of gravity cannot be explained by any classical ‘pizza’ theory, such as General Relativity (p. 19), yet my theory is not similar to the current Quantum Mechanics either (p. 3), as I’ve been arguing since December 2015 (p. 15). We need a brand new theory (forget about tensors, p. 15), which could also explain the origin of inertia. The latter is a total mystery. People read in Wikipedia that clocks that are far from massive bodies run more quickly, compared to clocks close to massive bodies, which run more slowly: if we consider the time-span of Earth (4.6 billion years), “a clock set at the peak of Mount Everest would be about 39 hours ahead of a clock set at sea level.”

But how could we define the rate of time? One second per second? We may not even think of the fundamental ‘tick of time’ \( dt \) (p. 6) as some finite “tile” (p. 20), as shown below.

Compare the tiles with Fig. 9 at p. 11 above.
Again from Wikipedia: “Gravitational time dilation has been experimentally measured using atomic clocks on airplanes. The clocks aboard the airplanes were slightly faster than clocks on the ground.” Fact. Read about the corrections to GPS Navigation System at p. 20 in [1].

What if we tweak the rate of time of an apple (app. 230g, p. 24) at sea level (London) to match the rate of time of the same apple in a space ship orbiting Earth at stationary orbit? The apple will become weightless. This is ‘reversible elimination of inertial mass’ (REIM), also known as AAV (p. 12). Only our perception of the passage of time might “slow down” a bit, as if we’re watching a video clip recorded at 60fps, at 30fps (30 “tiles” per second).

Needless to say, we have many more open questions in GR (p. 15), including the ubiquitous gravitational rotation (p. 7): read Richard Feynman. We do need an extensive professional discussion of the origin of gravity and inertia (p. 25), because in the presence of gravity (Carl Hoefer, p. 196) the total mass-energy is not conserved in the first place (p. 19). The speculations about some “gravitational quadrupole” are false. We have to examine the three types of mass (p. 15) and the possibility whether the non-linear (Ruben Aldrovandi) mass-energy monopole radiation could “leak” positive mass-energy, both in and out of a system, as suggested in the evolution equation (p. 4). This isn’t “magic” (p. 20). Although “there has never been a confirmed direct energy transfer to a detector via gravitational radiation” (Fred Cooperstock), we do know that the genuine gravitational radiation exists.

But where does it come from and goes back to? Sean Carroll claims that “spacetime can give energy to matter, or absorb it from matter, so that the total energy simply isn’t conserved”. Correct. But how can we square the circle? Perhaps the metaphoric elevator as “closed room”, shown in Fig. A (p. 21), is immersed in physically unobservable (P3 at p. 8) Aether with respect to which we define the physical 4D universe as ‘closed system’ that is isolated from the Aether, and by the Aether (p. 14): the atemporal Platonic Res potentia (p. 16). As Arthur Eddington stressed in 1928 (The Nature of the Physical World, p. 291): “Something unknown is doing we don’t know what — that is what our theory amounts to.”

For the record: fifteen years ago, on 17 July 2005, I wrote in my paper ‘Are Gravitational Waves Directly Observable?’ the following: “a hypothetical case related to the so-called dark energy would render the task impossible in principle.” Why? Because Kip Thorne and his LIGO collaborates use fictitious bare spacetime, modeled only with laser beams, to imagine some cyclical “distortions” of the spacetime metric due to two superposed metric fields, which they denote with \( h_+ \) and \( h_x \): read p. 13 above. These GR “experts” are abusing the spirit of the Theory of Relativity: there is no “bare” spacetime, resembling the grin of Cheshire cat without the cat (p. 26). Not convinced? Try the experiment suggested by Kip Thorne at p. 16 in [4]. That’s it, straight from the horse’s mouth.

Regrettably, my paper from 17 July 2005 was deleted by the talebans at arXiv.org, without any explanation, just as they deleted my initial two-page paper on 25 April 2019 (p. 3).

This is brutal vicious censorship. Billions of US dollars and euros — all taxpayers’ money — could have been saved, including those 450+ million EUR for the so-called LISA Pathfinder, and Kip Thorne and his LIGO collaborators could not fool you and get the Nobel Prize 2017.

NB: Don not allow Kip Thorne and his worldwide collaborators to fool you again (p. 25). Fool me once, shame on you; fool me twice, shame on me.

Let’s go back to where we started — the second REIM demonstration, in London (p. 25).
The issue is very intricate. Watch, for example, Paul Hellyer in April 2008.

Paul Hellyer (7:05–7:22): “What progress has been made in the development of clean energy sources that could conceivably replace fossil fuels and save the planet from becoming avertable wasteland?”

We try all sorts of renewable energy sources, but cannot eliminate coal. It is still the prevailing energy source, most notably in India and China. Germany, for example, has 84 coal plants. Quote from Wikipedia (emphasis mine):

On 26 January 2019, a group of federal and state leaders as well as industry representatives, environmentalists, and scientists made an agreement to close all 84 coal plants in the country by 2038. The move is projected to cost €40 billion in compensation alone to closed businesses. Coal was used to generate almost 40% of the country’s electricity in 2018 and is expected to be replaced by renewable energy. 24 coal plants are planned to be closed by 2022 with all but 8 closed by 2030. The final date is expected to be assessed every 3 years.

Great. Germany might end up with relatively small number of coal plants by 2030, in the best case scenario, “to be assessed every 3 years”. But according to James Temple at MIT (p. 5 in [6]): “At this rate, it’s going to take nearly 400 years to transform the energy system”. In 2018, the UN Intergovernmental Panel on Climate Change estimated that we have to invest every year €180 billion in renewable energy, energy efficiency, and clean transport until 2030 (p. 38 in [1]). That’s €2.16 trillion. My project (p. 26) is cheaper.

Pin down year 2030: we have no more than ten years to constrain and (hopefully) avoid the devastating climate catastrophe. We do need a breakthrough, and the first step is to organize a professional discussion of the origin of gravity and inertia (p. 25).

Here’s the first off puzzle, from James Woodward (emphasis added): “How did the stuff out there in the distant past (Sic! - D.C.) know that we would try to accelerate, say, our car at any specific instant and, in the distant past, move in just the right way to launch the right A field in our direction? Inertial reaction forces are instantaneous; there’s no doubt whatsoever about that. When you push on something, it pushes back on you immediately. If they’re caused chiefly by the most distant matter in the universe, how can that be?”

But in our case, “the stuff out there” is not in the past, because it is not on the light cone (p. 16). If you place it on the light cone, you will have insurmountable problems (p. 26). Read my proposal at p. 27. I only need financial support (p. 26) from people interested in Mathematics (p. 1), quantum gravity (p. 9), cosmology (p. 21), and life sciences (p. 8), or from those who care about climate change (p. 5 in [6]) and new energy sources (p. 21).
Regarding the latter, recall that your brain — not mind — used energy to ‘swing the carrot’ (p. 21) and deliver the answer to the quiz at p. 22. How much energy is needed to alter the boundary conditions of a system undergoing perpetual emission and reabsorption of virtual particles (BAVER, p. 9 in [1])? Quote from Peter Milonni: “An atom, for instance, can be considered to be “dressed” by emission and reabsorption of “virtual photons” from the vacuum.” Sure enough, the emission-and-reabsorption is already completed event (p. 16).

Namely, every physical, 4D event has atemporal (hyperimaginary) component: with respect to physical clocks, the photon “during” its flight, “after” being emitted but “before” being absorbed, lives over null intervals (p. 4 and p. 8), as already completed 4D event (p. 16).

There is no “magic” here, again. We know the implications of this phenomenon (p. 23), and now have to explore all possibilities for its explanation: “When you have eliminated the impossible, whatever remains, however improbable, must be the truth,” says Arthur Conan Doyle. Look at my application at 2004 Rolex Award for Enterprise, from September 9, 2003, at this http URL. Back in 2003, it was ‘business as usual’, as nobody was concerned about climate change (p. 5 in [6]) and the ultimate need for new energy sources (p. 28).

Has the situation changed by now? According to Donald Trump, it isn’t. We’re experiencing perfectly natural and certainly reversible temperature “fluctuations”. According to a study published in the Chinese Science Bulletin on 10 December 2010, the current global warming “cycle” is the result of a natural 21-year temperature oscillation, followed by a “new cool period in the 2030s.” Do you prefer to wait until 2030 for this “new cool period” (p. 28)?

Let’s go back to the atemporal Platonic matrix of photon per se, “during” its flight (read above): it is not shown in the two drawings below. Fig. C shows an already completed 4D event, located in the past (Fig. 3 in p. 16). For example, you create light with a light bulb, which emits photons with rate, say, 1.8 \( \times 10^{20} \) identical photons per second. Read the ‘dark room’ analogy at p. 5 and p. 8, and the juxtaposition of photons and water at p. 11. Recall also Justin Christensen and the explanation of physicalized photons at pp. 23-24 above: the Platonic matrix (p. 25) of photon per se “during” its flight is perfectly hidden (P3 at p. 8).

We can only picture photon’s wave function, pertaining to specific (not universal) case, e.g., to the propensities for physicalized photons in the case shown in Fig. D above. To quote Mark Fernee (March 21, 2019): “Photon’s description is dependent on the boundary conditions that define the field. A photon in an optical cavity (ie. trapped by mirrors) has a well-defined field mode, which in the limit of just a single photon, is still the field mode defined by the mirrors. A photon is not some billiard ball (or water, p. 11 — D.C.) bouncing between two mirrors. It is the field mode defined by the mirrors with one quantum of
energy. In the above diagram (Fig. D above — D.C.), the photon wavefunction would be the red and blue discs that represent the alternating electric and magnetic field maxima. It may be tempting to think of the field itself to be the photon. However, even an empty cavity has a the same field with exactly half a photon of energy: the vacuum energy.”

We have Platonic matrix (p. 25) also in the living world (P3 at p. 8) and in cosmology: read Slide 12 in Quantum Spacetime and recall the latticework of meter sticks and clocks, from Edwin Taylor and John Wheeler (p. 11).

All you need is a brain, to access the Platonic matrix and practice REIM, from ‘reversible elimination of inertial mass’ (p. 27). It is not “magic” (p. 20). Watch it at this http URL.

My first announcement of spacetime engineering was dubbed MAVER, on 31 October 1995. To avoid possible misinterpretation, I renamed it to BAVER, from Brain-Aided Vacuum Energy Release (p. 9 in [1]). BAVER is the alternative to Wendelstein 7-X in Germany. People dream to achieve “up to approximately 30 minutes of continuous plasma discharge in 2021.” So far well over €1 billion – all taxpayers’ money – were invested in it, as some “potential of stellarators as power plants”. No, it won’t work. No way. I emailed the chief scientist of Wendelstein 7-X twice, but he didn’t even confirm the receipt of my messages. Needless to say, I will be happy to explain my objections during the professional discussion of the origin of gravity and inertia (p. 25). I very much look forward to seeing how these German experts will “intuitively” disagree (p. 15), just as their Bulgarian colleagues did in February 1987 (p. 4 in Penrose-Norris Diagram).

Again, here’s my proposal (p. 8 in Wendelstein_7-X.pdf): swing the steam turbine rotors in the current nuclear power plants with spacetime engineering (Fig. E). No water supply, heat, or hazardous nuclear fuel are needed. It shouldn’t be a problem to rotate a chunk of metal – gravity can effortlessly rotate a whole galaxy en bloc. First, we must figure out the origin of gravitational rotation (Richard Feynman). This is the way to solve the task for unlimited clean energy and save our planet (p. 28). Not the nasty nuclear fission (Fig. F).

Read again James Temple at p. 28. Can we plant 1 trillion trees (Thomas Crowther et al.) to suck up carbon dioxide from the atmosphere? The year 2030 is just around the corner. Once we trespass the tipping point, we will be dead close to Climageddon and WWIII. Don’t even think that WWIII cannot happen because governments were “smart”. Read p. 5 in [6].
The only solution is spacetime engineering. We must focus on the rate of time (p. 27) and the origin of gravitational rotation (p. 7) viz. on the hyperimaginary (p. 21) centripetal “force” in the drawing at p. 46 in [1] and the drawings at p. 42 therein. The anomalous gravitational rotation, exhibited for example in galaxy rotation curves, can be harnessed to produce unlimited electricity (Fig. E above). This gravitational rotation does not come from the conventional physical source producing energy-momentum and angular momentum in the steam turbine rotors. It is manifestation of the topology of spacetime and what we call “vacuum” in theory of relativity – recall the interpretation of Aether (p. 27) as atemporal Platonic Res potentia (p. 16 and p. 20) and read Justin Christensen at p. 23. In QM, the same phenomenon is presented with atemporal (Erwin Schrödinger, p. 6) “quantum waves” (p. 7), which again do not exist as ‘physical reality’ (p. 23). It will be ferociously difficult to ‘connect the dots’ (p. 9) and reach quantum gravity [8], and the first step is to organize professional discussion of the origin of gravity and inertia (p. 28). First things first.

I am fully prepared. Praise the Lord and pass the ammunition!

At the end of the day, I expect that the three types of mass (cf. the equation at p. 4 and the diagram here) and the phenomenon of self-action (C2 at p. 8 and p. 23) will find their places in our Weltbild effortlessly, like pieces from jigsaw puzzle. We will also develop physical theology (pp. 29-30 in [1]): from physical perspective, God (John 1:1; Luke 17:21) is always “nullified” (p. 5 and P1 at p. 8), being both at the Beginning and at the End of spacetime, as well as “inside” the interface ‘here and now’ (p. 16). This interpretation of God and the new notion of Zenon manifold [8] are also based on the topology of spacetime, as I boldly speculated in January 1990 (p. 7). God is unique mathematical object, which is not comprehensible with human cognition. It (not “He”) is unique non-relational object, which includes ‘absolutely everything’ (p. 4), and hence God is not a proper ‘set’ anymore. Our binary logic is not applicable to the case of absolutely undecidable propositions, which can never be proved nor disproved, as they do not refer to a ‘set’. We can never prove nor disprove the existence of God with science or Mathematics. Thank God, this is impossible.

Back to the origin of spacetime engineering: I denounce the “alternative” options, physical (i) and paranormal (ii) (p. 26), and choose a brand new approach based on the atemporal Platonic Res potentia (p. 3 and p. 15). The latter occupies the potential future in the so-called ‘atom of geometry’ (Fig. 3 at p. 16), thanks to which it is perfectly decoupled from the physical world placed in the irreversible past. Namely, the atemporal Platonic Res potentia has exactly zero chance [8] to exist as physical reality (p. 2). Hence the need for so-called hyperimaginary numbers (|w|^2 = 0) and brand new spacetime manifold, dubbed Zenon manifold (P1 at p. 8). The end result is self-acting physical world (p. 3), including the human brain (p. 22), and the possibility to alter the state of all physical systems with spacetime engineering (p. 23), by tweaking their potential future (p. 21). This is not some paranormal “magic” (p. 6 and p. 20) but the macroscopic effects of so-called topological bridge (CQV) connecting the potential states of the human brain (p. 22) with the potential quantum-gravitational states (p. 29) of the physical system entangled with the brain, for example, the turbine rotor in Fig. E above. Let me demonstrate this ‘bridge’ (CQV) with an apple (p. 24 and p. 27), as the proof of the concept. Watch ‘Spacetime Engineering 101’ (summary at p. 17) released on 15.01.2020 at this http URL. To obtain the password for the video, follow strictly the instructions at pp. 2-3 in [4]. I will reply within five working days.

For the record: This paper was submitted to viXra:1904.0315 five mounts ago, 2019-08-13.

D. Chakalov
January 15, 2020, 10:30 GMT