Subject: Re: The 2017 Nobel Prize for physics was awarded to a **FRAUD**.
Date: Sun, 29 Oct 2017 20:36:03 +0000
Message-ID: <CAM7Ekx=xa7iBFpf6_Fh5-xHgK35Zk-7kA6KhTQViD7k0QR6LSA@mail.gmail.com>
From: Dimi Chakalov <dchakalov@gmail.com>
To: Kristina Wolff <kristina.wolff@nobel.kva.se>, Nils Martensson <nils.martensson@physics.uu.se>, David Haviland <haviland@nanophys.kth.se>, Olga Botner <olga.botner@physics.uu.se>, Thors Hans Hansson <hansson@fysik.su.se>, Gunnar Ingelman <gunnar.ingelman@physics.uu.se>
Cc: Kip <kip@tapir.caltech.edu>, Rainer Weiss <weiss@ligo.mit.edu>, LIGO Spokesperson David Shoemaker <dhs@mit.edu>, LIGO Deputy Spokesperson Laura Cadonati <cadonati@gatech.edu>, David Garfinkle <garfinkl@oakland.edu>, Gabriela Gonzalez <gonzalez@lsu.edu>, Stefano Vitale <vitale@science.unitn.it>, Eric Gustafson <egustafs@ligo.caltech.edu>, Andrzej Mariusz Trautman <amt@fuw.edu.pl>, Piotr <piotr.chrusciel@univie.ac.at>, JulieHiroto LIGO <jhiroto@ligo.caltech.edu>, Kenneth Libbrecht <kgl@caltech.edu>, Mike <zucker_m@ligo.mit.edu>, Joan Centrella <joan.centrella@nasa.gov>, Adrian Cho <acho@aaas.org>, Mark Hannam <markodh@googlemail.com>, Lee Samuel Finn <lsfinn@psu.edu>, Beverly Berger <grgsocietymail@gmail.com>, Hamish Johnston <hamish.johnston@iop.org>

Ladies and Gentlemen:

Please let me know who is the author of your "Scientific Background on the Nobel Prize in Physics 2017" - please see LIGO_NobelPrize2017.pdf attached.

I strongly reject the claim that "it was not until the late 1950's that it was rigorously proven that the waves actually exist as solutions to the full non-linear equations, and that they carry energy [16-18]."

If you fail to respond to this second email message by Saturday, 4 November 2017, I will consider you complicit in the **FRAUD** committed by Kip Thorne and his collaborators and will contact the appropriate scientific journals and media outlets.

If this email does not automatically bounce back, I will consider it delivered.

Looking forward to hearing from you at your earliest convenience,

Dimi Chakalov
chakalov.net

On Wed, 4 Oct 2017 12:47:58 +0000, Dimi Chakalov <dchakalov@gmail.com> wrote:
>
> Ladies and Gentlemen:
>
> The 2017 Nobel Prize for physics was awarded to a FRAUD.
>
> See LIGO_NobelPrize2017.pdf attached.
>
> Details at my website below.
>
> D. Chakalov
> chakalov.net
>

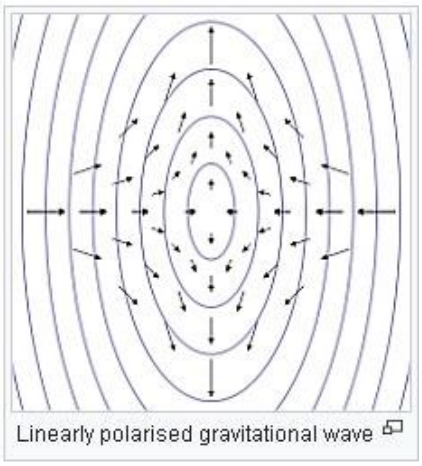
Attachment: LIGO_NobelPrize2017.pdf

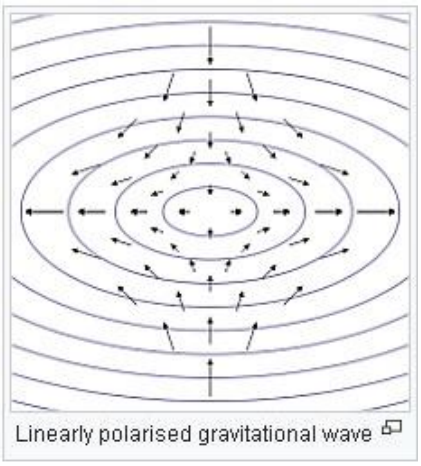
NOTE

Press Release, 3 October 2017: The Royal Swedish Academy of Sciences has decided to award the Nobel Prize in Physics 2017 to Rainer Weiss, Barry C. Barish, and Kip S. Thorne "for decisive contributions to the LIGO detector and the observation of gravitational waves".

What is 'gravitational wave' (GW)? Let me quote from Wikipedia (links and comment added):

> In Einstein's theory of general relativity, gravity is treated as a phenomenon resulting from the curvature of spacetime. This curvature is caused by the presence of mass. (...) As objects with mass move around in spacetime, the curvature changes to reflect the changed locations of those objects. In certain circumstances, accelerating objects generate changes in this curvature, which propagate (**why?** – D.C.) outwards at the speed of light in a wave-like manner. These propagating phenomena are known as gravitational waves. As a gravitational wave passes an observer, that observer will find spacetime distorted by the effects of strain. Distances between objects increase and decrease rhythmically as the wave passes, at a frequency corresponding to that of the wave.


Linearly polarised gravitational wave


Linearly polarised gravitational wave

But the alleged "observation of gravitational waves" is impossible *in principle* — check out the **two** gravity ⇌ matter conversions in pp. **129-130** in gravity.pdf at chakalov.net, and the Note on pp. **123-125** therein. The task of observing gravitational waves (GWs) is impossible in principle, because GWs are not *physical* waves, like for example the sound waves produced by vibrating membrane in a loudspeaker. Accelerating objects do **not** generate "propagating phenomena" (Kip Thorne) dubbed gravitational waves (cf. Wikipedia above). It is impossible *in principle* to observe the gravitational waves **themselves**, just as we cannot in principle observe the quantum waves with complex phase. In both cases, we observe their *physicalized* manifestations, but never the **unphysical** waves *themselves*. **No way**. Read the explanation of gravitational radiation from 29 May 2015 and notice that wave-like holomovement (e.g., centipede) *always* leads to **cycles**.

If the proponents of "GW astronomy" disagree, they will have to deliver **four** absurd "miracles": (**i**) gravitons (**Q2** in gw_miracles.pdf) with mass $m_g \leq 7.7\times10^{-23}$ eV/c^2, "dispersed in vacuum like massive particles" (arXiv:1706.01812v1), (**ii**) "vacuum" spacetime endowed *only* with Weyl curvature, (**iii**) black holes in spacetime containing matter (no timelike naked singularities), and (**iv**) gravitational waves from GW150914 ("In classical general relativity, a *vacuum* BBH merger does not produce any EM or particle emission whatsoever", arXiv:1602.08492v4, p. **9**), for which Kip Thorne and his collaborators were awarded the Nobel Prize in Physics 2017.

All these **facts** are widely known, at least since August 2002, which is why Kip Thorne and his LIGO collaborators committed an enormous **FRAUD** to get Nobel Prize. No, they aren't stupid. Details are provided in readme.html or readme.pdf in chakalov.zip (app. 18Mb).

D. Chakalov
29 October 2017
Latest update: 23 November 2017, 11:02 GMT

Subject: The 2017 Nobel Prize for physics was awarded to a FRAUD.
Date: Mon, 30 Oct 2017 16:16:54 +0000
Message-ID: <CAM7Ekx=cDDtktEs+Zyt2D3TXChZ6hMxdpm7Ut2Gx1yHMYVFxyQ@mail.gmail.com>
From: Dimi Chakalov <dchakalov@gmail.com>
To: abbott_b@ligo.caltech.edu, Abby <ashtekar@gravity.psu.edu>, Abraham Loeb <aloeb@cfa.harvard.edu>, Adam Helfer <helfera@missouri.edu>, adam.m.goldstein@nasa.gov, Adria Gomez-Valent <adriagova@fqa.ub.edu>, Adrian Cho <acho@aaas.org>, Alan Coley <aac@mathstat.dal.ca>, Alan J Weinstein <ajw@caltech.edu>, Alan Rendall <rendall@uni-mainz.de>, anderson_s@ligo.caltech.edu, Andrzej Mariusz Trautman <amt@fuw.edu.pl>, arau@mpe.mpg.de, Arturo Avelino <aavelino@cfa.harvard.edu>, azk@mpe.mpg.de, bagrat.mailyan@uah.edu, Bala Iyer <bri@rri.res.in>, barish_b@ligo.caltech.edu, Beatrice Bonga <bpb165@psu.edu>, Benjamin Knispel <benjamin.knispel@aei.mpg.de>, Bernard Schutz <Bernard.Schutz@aei.mpg.de>, Bernard Schutz <bernard.schutz@cardiff.ac.uk>, Bernd Brügmann <b.bruegmann@tpi.uni-jena.de>, Beverly Berger <grgsocietymail@gmail.com>, bill.paciesas@nasa.gov, Binbin Zhang <bz0006@uah.edu>, Bob Taylor <taylor_r@ligo.caltech.edu>, Brien <brien.nolan@dcu.ie>, Bruce Allen <bruce.allen@aei.mpg.de>, buonanno@physics.umd.edu, c.m.hui@nasa.gov, Carla Cederbaum <cederbaum@math.uni-tuebingen.de>, Carlo <rovelli.carlo@gmail.com>, Carlos Sopuerta <sopuerta@ieec.uab.es>, Catherine Meusburger <catherine.meusburger@gmail.com>, Cecilia Flori <cflori@perimeterinstitute.ca>, Cesar Garcia Marirrodriga <Cesar.Garcia@esa.int>, Paul McNamara <paul.mcnamara@esa.int>, Charles Dunn <Charles.E.Dunn@jpl.nasa.gov>, Charles Torre <charles.torre@usu.edu>, charles.a.meegan@nasa.gov, Chris Isham <c.isham@imperial.ac.uk>, ckouveliotou@gwu.edu, Clifford Will <cmw@wuphys.wustl.edu>, colleen.wilson@nasa.gov, Damien Texier <contactesa@esa.int>, Daniel Kennefick <danielk@uark.edu>, Daniele Oriti <doriti@aei.mpg.de>, David B Malament <dmalamen@uci.edu>, Laszlo Szabados <lbszab@rmki.kfki.hu>, David Garfinkle <garfinkl@oakland.edu>, David Reitze <reitze@ligo.caltech.edu>, david.tierney@ucd.ie, Dieter R Brill <brill@umd.edu>, Domenico Giulini <giulini@itp.uni-hannover.de>, Don <lincoln@fnal.gov>, Eanna Flanagan <flanagan@astro.cornell.edu>, Emanuele <berti@wugrav.wustl.edu>, Eric <epoisson@uoguelph.ca>, Eric Gustafson <egustafs@ligo.caltech.edu>, Eric Linder <evlinder@lbl.gov>, Eric Plagnol <eric.plagnol@apc.univ-paris7.fr>, EricKayserBurns@gmail.com, Erik Curiel <erik@strangebeautiful.com>, Erwan Allys <allys@iap.fr>, Ettore Minguzzi <ettore.minguzzi@unifi.it>, Evangelos Melas <emelas@econ.uoa.gr>, Ezra Newman <newman@pitt.edu>, fbeyer@maths.otago.ac.nz, fersotj@gmail.com, Gabriela Gonzalez <gonzalez@lsu.edu>, Gary Horowitz <gary@physics.ucsb.edu>, gdoulis@phys.uoa.gr, George Ellis <gfrellis@gmail.com>, gerard.fitzpatrick@ucdconnect.ie, Gian Michele Graf <gian-michele.graf@itp.phys.ethz.ch>, gopapado@phys.uoa.gr, Greg Galloway <galloway@math.miami.edu>, gustafson_e@ligo.caltech.edu, Gustav <g.holzegel@imperial.ac.uk>, gyounes@email.gwu.edu, Hamish Johnston <hamish.johnston@iop.org>, Helmut <hef@aei.mpg.de>, Ian Harrison <ian.harrison@esa.int>, Ira Thorpe <james.i.thorpe@nasa.gov>, James Dilts <jdilts@ucsd.edu>, James M Nester <nester@phy.ncu.edu.tw>, Jean-Philippe Uzan <uzan@iap.fr>, jerry.fishman@nasa.gov, jhennig@maths.otago.ac.nz, Joan Centrella <joan.centrella@nasa.gov>, Joan Sola <sola@fqa.ub.edu>, Jochen Greiner <jcg@mpe.mpg.de>

Ladies and Gentlemen:

Feel free to prove me wrong - read FRAUD.pdf (2 pages) at

http://www.god-does-not-play-dice.net/FRAUD.pdf
(30 October 2017, 15:05 GMT)

The fun part is just around the corner :-)

D. Chakalov
chakalov.net

Subject: The 2017 Nobel Prize for physics was awarded to a FRAUD.
Date: Mon, 30 Oct 2017 16:18:26 +0000
Message-ID: <CAM7EkxmbH15pRaDgbmb0JqNxjTkPbBmciYZG4Yeu8ySR11iZMQ@mail.gmail.com>
From: Dimi Chakalov <dchakalov@gmail.com>
To: John Baez <baez@math.ucr.edu>, John Stachel <john.stachel@gmail.com>, Jörg Frauendiener <joergf@maths.otago.ac.nz>, Jorge Rueda <jorge.rueda@icra.it>, Nigel <n.bishop@ru.ac.za>, Jose Geraldo Pereira <jpereira@ift.unesp.br>, Jose M M Senovilla <josemm.senovilla@ehu.es>, Jose Rodriguez <jose.rodriguez2@correo.uis.edu.co>, Josh Goldberg <goldberg@phy.syr.edu>, JulieHiroto LIGO <jhiroto@ligo.caltech.edu>, Karel V Kuchar <kuchar@physics.utah.edu>, Karsten <karsten.danzmann@aei.mpg.de>, Kenneth Libbrecht <kgl@caltech.edu>, Kip <kip@tapir.caltech.edu>, Laszlo Szabados <lbszab@rmki.kfki.hu>, Lee Samuel Finn <lsfinn@psu.edu>, LIGO Deputy Spokesperson Laura Cadonati <cadonati@gatech.edu>, LIGO Spokesperson David Shoemaker <dhs@mit.edu>, lisa.gibby@nasa.gov, LSC Education and Public Outreach Group <lsc-epo@ligo.org>, Luca Bombelli <luca@phy.olemiss.edu>, Luciano <rezzolla@th.physik.uni-frankfurt.de>, Lukas <lukas.ifsits@univie.ac.at>, Mansi Kasliwal <mansi@astro.caltech.edu>, Marco Cavaglia <marco.cavaglia@ligo.org>, LSC Web Team <lsc-webcomm@ligo.org>, marco.drago@aei.mpg.de, Mark Hannam <markodh@googlemail.com>, Martin Hewitson <hewitson@aei.mpg.de>, Masatake Ohashi <ohashi@icrr.u-tokyo.ac.jp>, Matthew Stanbro <mcs0001@uah.edu>, Melissa <melissa.pesce.rollins@pi.infn.it>, michael burgess <jmichaelburgess@gmail.com>, Michael Holst <mholst@ucsd.edu>, michael.briggs@nasa.gov, Michele <michele.maggiore@unige.ch>, Mike <zucker_m@ligo.mit.edu>, misty.m.giles@nasa.gov, mkippen@lanl.gov, mmcleod@learner.org, narayana.bhat@nasa.gov, Niall Murchadha <niall@ucc.ie>, Norbert Straumann <norbert.straumann@gmail.com>, Oliver Jennrich <oliver.jennrich@esa.int>, Oliver Roberts <oliver.roberts@ucd.ie>, osc@ligo.org, Paul McNamara <paul.mcnamara@esa.int>, Paul Steinhardt <steinh@princeton.edu>, Paul Tod <tod@maths.ox.ac.uk>, Pedro Marronetti <pmarrone@nsf.gov>, peter.a.jenke@nasa.gov, Philippe Jetzer <jetzer@physik.uzh.ch>, Piotr <piotr.chrusciel@univie.ac.at>, pv0004@uah.edu, Rainer Weiss <weiss@ligo.mit.edu>, Remo <ruffini@icra.it>, Richard M Schoen <schoen@math.stanford.edu>, Erik Curiel <erik@strangebeautiful.com>, Rob Preece <rob.preece@nasa.gov>, Robert Geroch <geroch@uchicago.edu>, Robert J Low <mtx014@coventry.ac.uk>, Robert Kirshner <rkirshner@cfa.harvard.edu>, Robert M Wald <rmwa@midway.uchicago.edu>, Rod Diehl <rod@mpe.mpg.de>, Roger Penrose <penroad@wadh.ox.ac.uk>, Rosalba Perna <rosalba.perna@stonybrook.edu>, Sanjeev Dhurandhar <sanjeev@iucaa.ernet.in>, sarah.gossan@tapir.caltech.edu, Sascha Husa <sascha.husa@gmail.com>, Saul Teukolsky <saul@astro.cornell.edu>, SciTech.Editorial@esa.int, Sean Hayward <sean_a_hayward@yahoo.co.uk>, Seiji Kawamura <seiji@icrr.u-tokyo.ac.jp>, sheila.mcbreen@ucd.ie, Stefano Vitale <vitale@science.unitn.it>, stephen.e.elrod@nasa.gov, Steven Weinberg <weinberg@physics.utexas.edu>, swang5@caltech.edu, Takaaki Kajita <kajita@icrr.u-tokyo.ac.jp>, Tarun Souradeep <tarun@iucaa.ernet.in>, Bob Taylor <taylor_r@ligo.caltech.edu>, Ulrich H Gerlach <gerlach.1@osu.edu>, Valerie Connaughton <valerie@nasa.gov>, vero.pelassa@gmail.com, Vincenzo Branchina <vincenzo.branchina@ct.infn.it>, William G Unruh <unruh@physics.ubc.ca>, William.Cleveland@nasa.gov, Xiao Zhang <xzhang@amss.ac.cn>, yamamoto_h@ligo.caltech.edu, Yuan K Ha <yuanha@temple.edu>, zhang_l@ligo.caltech.edu, Zhao-Yan Wu <zhaoyanwu2000@yahoo.com>, zweizig_j@ligo.caltech.edu

Ladies and Gentlemen:

Feel free to prove me wrong - read FRAUD.pdf (2 pages) at

http://www.god-does-not-play-dice.net/FRAUD.pdf
(30 October 2017, 15:05 GMT)

The fun part is just around the corner :-)

D. Chakalov
chakalov.net

NOTE

Today is Thursday, 23 November 2017, and nobody from the Nobel Committee for Physics has replied to my inquiry from Sunday, 29 October 2017. I also sent two email messages to many theoretical physicists on 30 October 2017 at 16:16 and at 16:18, in which I wrote that the fun part is just around the corner. It is a great pleasure to present the crux of quantum gravity in one page only. It is all about the *potential* quantum-gravitational "waves" — just follow the links.

Let me first recall the gravitational conversions mentioned above, matter to gravity and gravity to matter, explained on pp. **129-130** in gravity.pdf. I will assume you've read the Note there, and will briefly elaborate on the reasons why the gravitational waves *themselves* cannot be observed in principle, just as it is impossible in principle to observe intact, **un**collapsed quantum waves.

Look at Slide **7** in Quantum Spacetime, depicting three *consecutive* wave ⇌ particle conversions. It is 'the only mystery in quantum mechanics' from 1911, thanks to Charles Wilson. Unlike the double-slit experiment from 1927, there is nothing "fundamentally probabilistic" in Slide **7**. Yet we cannot observe the quantum waves with complex phase (Erwin Schrödinger), and can only suggest wave-particle duality viz. 'quantum reality' as an alternative to physical reality (Slide **5**).

I went one step further and suggested gravity-matter duality, stressing that the **origin** of gravity is not physical reality, namely, the source of gravity is not like a pizza delivered to your door step (the right-hand side of Einstein's field equations). In wave ⇌ particle duality and gravity ⇌ matter duality, the left-hand sides refer to *potential* reality "just in the middle between possibility and reality" (Werner Heisenberg), which, in the case of gravity ⇌ matter duality, is considered to be Einstein's *Gesamtfeld* (p. **2** and Sec. **3** in Gravity-Matter Duality). If *potential* reality was physical reality, gravity will be *bona fide* physical field: the gravitational waves (GWs) will be similar to sound waves generated by vibrating membrane in a loudspeaker (p. **123** in gravity.pdf), and the inertial mass of an accelerating particle will be "simply a back-reaction to its own gravitational field" (Wolfgang Rindler, p. 22), resembling the resistance to bullet passing through "its own" water (Slide **5**). To cut the long story short, the gravitational and quantum "waves" are neither physical "pizzas" (p. **2** above) nor some "fictitious force" or "state of knowledge". Both GR and QM suffer from their failure to implement the phenomenon of *potentia* known since Aristotle.

The manifestation of gravity ⇌ matter duality is similar to its quantum sibling to the extent to which the consecutive wave ⇌ particle conversions in Slide **7** from Quantum Spacetime resemble the consecutive gravity ⇌ matter "pizzas" explained on p. **9** in Gravity-Matter Duality. Both the so-called computing with "qubits", based on manipulating quantum entanglement locally (watch Henry Stapp) during a *finite* spacetime interval, and the observation of GWs **themselves** are impossible in principle. We can see only the "swathe" of **physicalized** gravity, and never its underlying **unphysical** "wave". In QM parlance, all 4D events 'here and now', constituting the *transient* (Sic!) "slice" of spacetime, are created by "collapsed" (**A2** in Slide **19**) "waves" of gravity, without *any* gaps whatsoever in the spacetime continuum (pp. **105-119** in gravity.pdf).

As I stressed earlier, the **facts** about GWs are widely known, at least since August 2002, which is why Kip Thorne and his collaborators had to organize an enormous **FRAUD** to get Nobel Prize. But unlike the proverbial Nigerian widows, they did not play with small cash. They wanted *much* more, and Kip Thorne already collected 250,000 USD, knowing bloody well (he isn't stupid at all) that the crucial refs. [16-18] above are **false**. What is "a person or thing intended to deceive others, typically by unjustifiably claiming or being credited with accomplishments or qualities"? Voila.

One day in the distant future the Nobel Committee for Physics will have to retract not one but two Nobel Prizes, awarded in 2017 and in 1993. I probably won't be here to witness this spectacular event — I am already old and may kick the bucket any time soon. Besides, I have everything I need to work on my project (p. **20** in Hyperimaginary Numbers). Luckily, it has nothing to do with the Nobel Committee and their distinguished academic scholars. Does a fish need a bicycle?

D. Chakalov
November 5, 2017
Last update: November 25, 2017, 13:37 GMT

ADDENDUM

I have no idea how spin-2 "gravitons" could be "emitted" at the speed of light (see Wikipedia), but perhaps it could help to compare it to photon emission (p. **2** in Hyperimaginary Numbers):

> Imagine that you enter your living room at night and switch on the light. If it is a light bulb, it will emit photons with rate app. 1.8×10^{20} photons per second. All photons are identical and have particular wavelength corresponding to the "distance" (if any) between the two "orbits" (if any) of electrons (see h in Fig. 1 below).

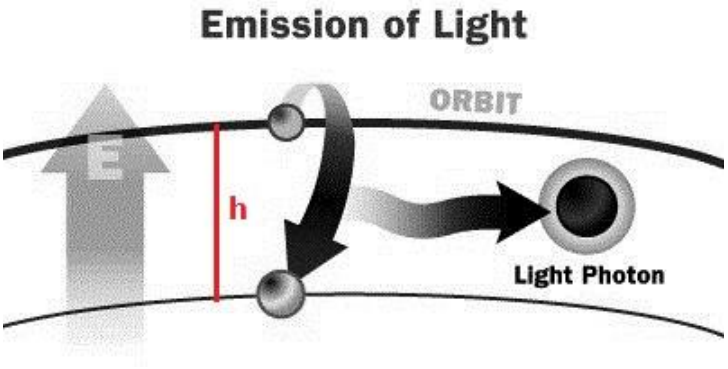


Fig. 1

But it is a vacuum mystery, and mysteries don't help much. How come nothing goes wrong with producing 1.8×10^{20} *identical* photons *per second*, ever? Also, the photons were not "attached" to electrons *before* being released; they *emerged* from the quantum vacuum (Peter Milonni), and at the instant of their *emergence*, all photons were *already* accelerated at the "speed" of light — instantaneously.

We don't know how *yet-to-become* photons exist in the quantum vacuum and how they could be instantaneously accelerated at the "speed" of light. It is a deep mystery, yet we have a scientific theory which works flawlessly: read the yellow button story on p. **15** in Hyperimaginary Numbers.

But do we have *any* theory of gravitational waves? Recall the quote from Wikipedia above: you are invited to believe in some "curvature" (if any) which, for some *totally* unknown reasons (compare it with photons), would somehow emit spin-2 "gravitons" (see below) by means of "pulsating" gravitational wave "outwards" *and* at the speed of light *and* in a wave-like manner.

Sounds like a "miracle" to me. Accelerated or not, physical bodies do **not** "pulsate" like vibrating membrane in a loudspeaker. Suppose their "curvature" (if any) does, but what is "curvature"? As Hyun Seok Yang explained in arXiv:1111.0015v3, the *metric* field in General Relativity (Fig. 2) is supposed to have some peculiar *elasticity* endowed with ("dark smooth", Sean Carroll) **tension**:

> "That is, the (flat) spacetime behaves like a metrical elasticity which opposes the curving of space. But this picture rather exhibits a puzzling nature of flat spacetime because the flat spacetime should be a completely empty space without any kind of energy as we remarked above. How is it possible for an empty space of **nothing** to behave like an elastic body with tension ?"

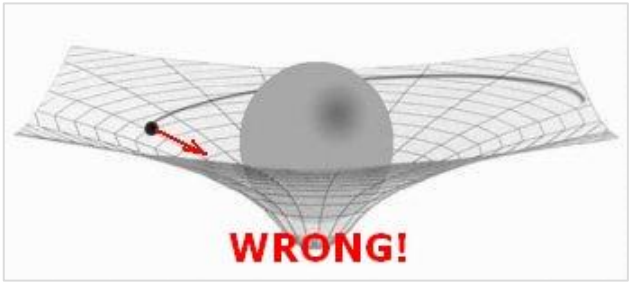


Fig. 2

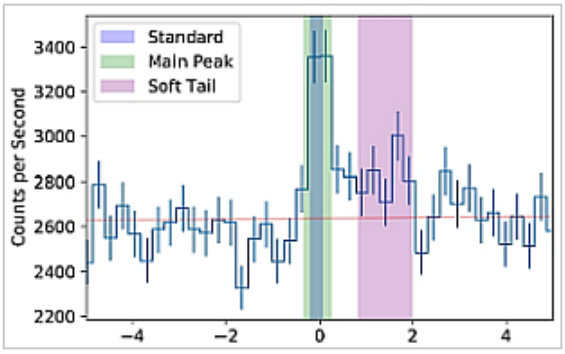
Just like the photons above, the alleged gravitational "field" *emerges* out of **nothing**, yet it can "pulsate" and produce spin-2 "gravitons", and eventually "the most powerful explosion humans have ever detected except for the big bang" (Kip Thorne), estimated at around 5.4×10^{54} erg.

Do you smell a rat? Don't worry, because the Nobel Prize laureate Kip Thorne has proved, beyond any doubt, that you too can produce "gravitons": check out his professional recipe on p. **6** in readme.pdf in chakalov.net. Or go directly to the source, Exercise 27.8, 1227.1.K.pdf, pp. 31-32:

> Problem: *Gravitational waves from arm waving*
>
> Wave your arms rapidly, and thereby try to generate gravitational waves.
> (**a**) Compute in order of magnitude, using classical general relativity, the wavelength of the waves you generate and their dimensionless amplitude at a distance of one wavelength away from you.
> (**b**) How many gravitons do you produce per second?

How many "gravitons" per second did you produce? Compare your result to the one from an average Hummingbird, in line with Thorne's recipe (**a**) above, and the Nobel Committee for Physics will certainly contact you *very* soon.

Alternatively, you may choose to work only with the **facts** from gravitation and astronomy (Daniel Pomarède and holon.pdf). Recently, astronomers suggested that "the panchromatic photons, hereafter EM170817, are spatially, temporally and physically associated with GW170817" (Mansi Kasliwal *et al.*, arXiv:1710.05436v1). Look at what Fermi Gamma-ray Space Telescope detected, from arXiv:1710.05446v1: no "post-merger signal" nor neutrino emission.



Phil Evans acknowledged that "it's possible that a neutron star was formed at least for a very short time — but we can't be certain." Nothing is certain. According to Wikipedia, EM170817 could be caused by "either a neutron star heavier than any known neutron star, or a black hole lighter than any known black hole.[25]" Matching the factual event EM170817 to some alleged "GW170817" (excerpts here!) is like pretending that you've seen an elephant, only cannot show its trunk. It could be *anything*, say, a giraffe. Or perhaps an animal you have never seen before.

Do not rush into judgment. Examine the facts without wishful thinking, and recall Albert Einstein (p. **62** in gravity.pdf):

> The right side is a formal condensation of all things whose comprehension in the sense of a field-theory is still problematic. Not for a moment, of course, did I doubt that this formulation was merely a makeshift in order to give the general principle of relativity a preliminary closed expression. For it was essentially not anything more than a theory of the gravitational field, which was somewhat artificially isolated from a total field (*Gesamtfeld*) of as yet unknown structure.

You may never be awarded the Nobel Prize in Physics, however.

D. Chakalov
November 5, 2017
Last update: November 25, 2017, 13:39 GMT

ÜBER DAS GESAMTFELD IN DER ALLGEMEINEN RELATIVITÄTSTHEORIE

In English, the title of this philosophical essay means 'About the *Gesamtfeld* in General Relativity'. In Mandarin, it reads: 从阿里巴巴购买所有你需要的 (maybe). Point is, we don't know what the *Gesamtfeld* is, so let's try first to find out what it is not.

I will argue, after eliminating all alternative explanations of Einstein's *Gesamtfeld*, that "whatever remains, however improbable, must be the truth" (Arthur Conan Doyle). It turns out that the only available explanation leads to a luxonic **pre**-geometric plenum on null hypersurface, which exists as *potential* reality and **wraps** the entire physical world at its spacetime "boundaries" at null-and-spacelike infinity. Physically, we can "look" at Einstein's *Gesamtfeld* only from our 3D "balloon" expanding along the (hyperimaginary) axis **W** (Figs. **4** and **5** in Gravity-Matter Duality), and will obtain two images from it, depending on whether we look toward the largest section of our 3D balloon or toward the smallest section of infinitesimal spacetime region of our 3D balloon. Yet the *Gesamtfeld* is neither "large" nor "small", because it does not have metric (p. **107** in gravity.pdf). How "large" or "small" are the *ideas* of a tree and that of a mountain? Thus, we identify 'God's thoughts' (Albert Einstein) with his *Gesamtfeld*. The original idea is from Plato (Fig. **4** in CEN.pdf); I only added the doctrine of trialism (Slide **14** in Quantum Spacetime).

Einstein's *Gesamtfeld* (total field, Kevin Brown) is definitely not 'physical reality *out there*', like a pizza delivered to your door step (p. **2** and Sec. **3** in Gravity-Matter Duality). If it were, the *dynamic* contributions of gravity to matter (recall Escher's drawing hands) would have existed as 'pizza *out there*' **before** being delivered to the right-hand side of Einstein's field equations. To explain 'physical reality *out there*', suppose at some instant **P** we look at the Sun: we see its **past** state 'out there', which was its physical state about 8 minutes **before** we saw it at **P**. At exactly the same instant **P**, the Sun has a new physical state, which is 'out there' in *our* **future**, and surely we will observe it **after** roughly 8 minutes as well. This is our operational definition of 'physical reality *out there*' or simply 'physical reality': at every event **P**, there are two physical states 'out there', in the **past** and in the **future** sections of the light cone with apex at **P**. Thus, the *physical* reality is made by facts and nothing but facts. Gravity is ontologically different and richer: only its *physicalized* manifestations are 'facts', while their *source* is *potential* reality "just in the middle between possibility and reality" (Werner Heisenberg), which does not live *anywhere* on the light cone. It has only *physicalized* footprints on the *fleeting* event **P** (**A2** in Slide **19**): see Fig. **3** in Gravity-Matter Duality and 'the Dragon biting its tail' on p. **3** in Penrose-Norris Diagram.

We also know that the *source* of gravity is different from the intact, **un**collapsed quantum waves (Erwin Schrödinger), although in both cases we face two *types* of potential reality — gravitational waves (GWs) and quantum waves. If we denounce the difference between *potential* reality and *physical* reality and keep only the latter, we will be haunted by *Gespensterfelder* ("spooky action at a distance"), non-baryonic "dark matter" and "dark energy", to name but a few. Very bad idea.

But in what sense the potential gravitational waves (GWs) differ from their quantum counterpart? Look at the way we define *potential* gravitational reality as **un**physical state of the entire physical universe, located *exactly* at the "boundary" of the physical world at null-and-spacelike infinity: see the 'two pint beer' on p. **2** in Penrose-Norris Diagram and the 'accelerated elevator' viewed as 'closed system' depicted with Fig. **5** in Gravity-Matter Duality. Human cognition is inherently relational, and in order to even *think* about the entire physical world as 'closed accelerated system', we need to define its global "acceleration" with respect to an **ideal** (not "real") inertial observer, which (not "Who") is at **absolute** rest with respect to the global **flow** of 4D events, like the banks of the Heraclitean river *with respect to which* we claim that 'you cannot look twice at the same river'. Isaac Newton interpreted the 'river banks' as absolute space at absolute rest. The same absolute object is called luminiferous aether: "If light takes several years to reach us from a distant star, it is no longer on the star, nor is it on the earth. It must be somewhere, and supported, so to speak, by some material agency" (Henri Poincaré). Surely light is "supported", but not by some "material agency", because 'potential reality' or *Res potentia* is not placed "somewhere" but on null hypersurface (**A2** in Slide **19**). It is also an *atemporal* **pre**-geometric plenum, which of course cannot have metric (p. **107** in gravity.pdf). Therefore, **it** is not 'matter' (*Res extensa*) and cannot ruin the theory of relativity by having only a *footprint* at **P** (see above).

We can only observe its *physicalized* effects, for example, only one type of mass-energy dubbed "positive" (p. **105** in gravity.pdf), thanks to the fundamental *asymmetry* of the Heraclitean river. To cut the long story short, all problems with the "boundaries" of spacetime at "infinity" (e.g., Helmut Friedrich) are from ignoring the Heraclitean *flow* of 4D events (Fig. **3** in Gravity-Matter Duality). Once we uncover the new hyperimaginary numbers, we will be able to define Finite Infinity (**FI**, see pp. **6-7** in Penrose-Norris Diagram) and use brand new presentation of 'zero' to describe the *perfect* continuum — no "gaps" no "jumps" — of quantum-gravitational spacetime.

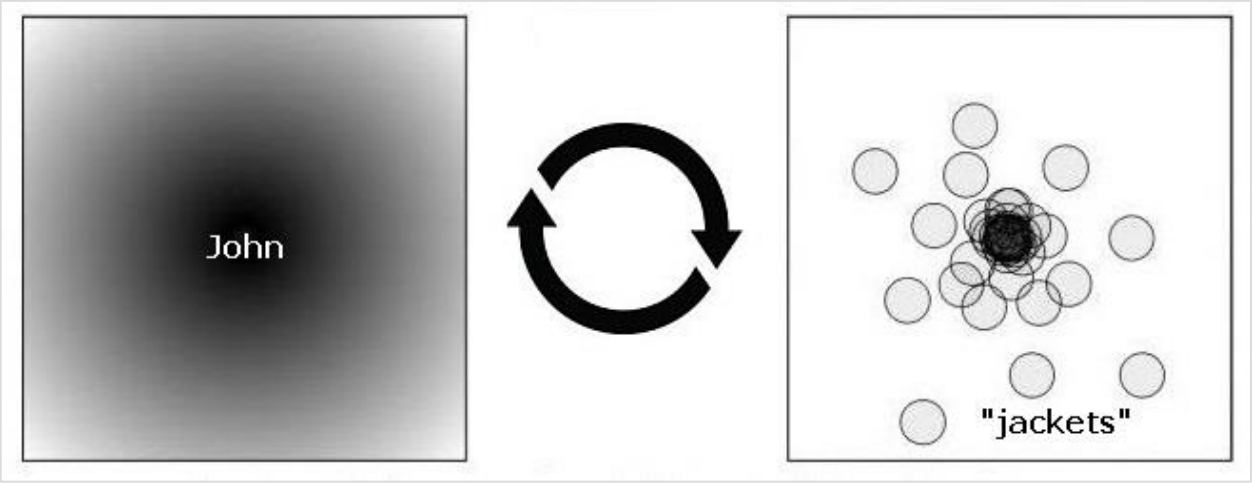
All we need is Mathematics. There are no genuine "gravitational energy" nor genuine "vacuum energy" — we observe only their *physicalized* "jackets" (p. **3** in CEN.pdf) cast from/by Einstein's *Gesamtfeld* on the *perfect* continuum of quantum-gravitational spacetime: Dead matter makes quantum jumps; the living and quantum-gravitational matter is smarter. We fully endorse Erwin Schrödinger (1926): "Wenn es doch bei dieser verdammten Quantenspringerei bleiben soll, so bedaure ich, mich mit der Quantentheorie überhaupt beschäftigt zu haben." (If we have to go on with these damned quantum jumps, then I'm sorry that I ever got involved.) As he explained in *The Interpretation of Quantum Mechanics* (Dublin Seminars (1949-1955) and Other Unpublished Essays, ed. by Michel Bitbol, Ox Bow Press, Woodbridge, 1995):

> Let me say at the outset, that in this discourse, I am opposing not a few special statements of quantum mechanics held today (1950s), I am opposing as it were the whole of it, I am opposing its basic views that have been shaped 25 years ago, when Max Born put forward his probability interpretation, which was accepted by almost everybody. (…) I don't like it, and I'm sorry I ever had anything to do with it.

Any suggestions? I have so far received only one, from Prof. Dr. rer. nat. Maurice de Gosson at the University of Vienna: "Buzz off, idiot!" (p. **5** in Penrose-Norris Diagram).

D. Chakalov
November 10, 2017
Last update: November 16, 2017, 12:00 GMT

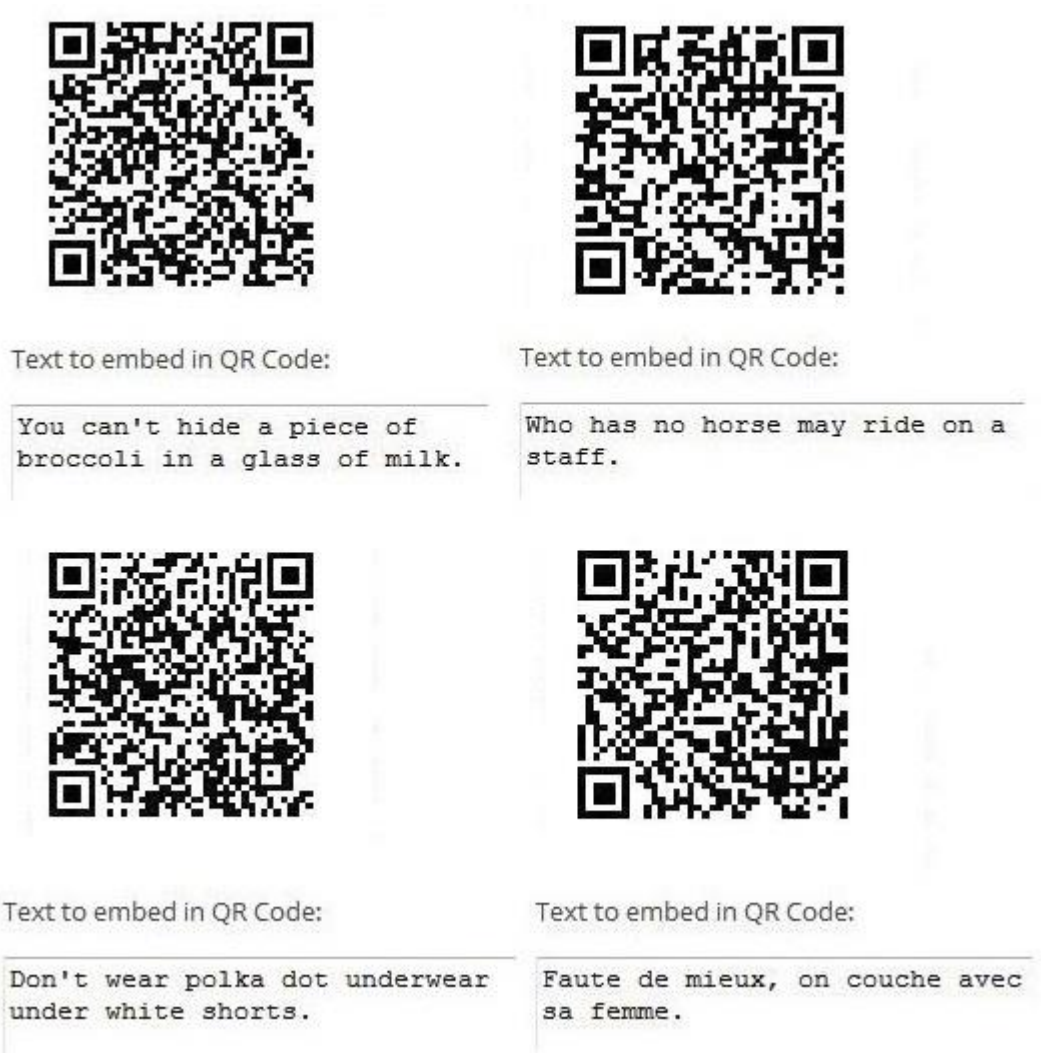
WHAT IS QUANTUM-GRAVITATIONAL MASS?



I was reminded today of the controversy around the neutrino mass. How does it emerge? What is its ultimate source? Let me offer an analogy from cognitive psychology: replace 'quantum mass' with 'meaning', and keep in mind that every invariant 'meaning' can have different "flavors".

You can see three flavors of neutrino (also called "jackets") — electron, muon, and tau — here. The poor photon (see above) has only one "flavor" and hence can emerge only by one "jacket" (p. **3** in CEN.pdf). Point is, in all cases of *emerging* quantum mass in the form of 'particle', the *source* of the mass is **zero**, in the sense that the *source* (John) is **not** 'physical reality *out there*'.

Still confused with the emergence of quantum mass? Try the experiment with your brain on p. **2** in Hyperimaginary Numbers, reproduced below. You can produce two "particles", each having two distinct "flavors", depicted in the drawing below. Point is, their common source (called 'John') is **UN**speakable, so I really don't know what 'mass' is. I hope is to see a family of Higgs-like bosons at 14 TeV in 2018, including a new one with spin-**2** "flavor" (Slide **10** in Quantum Spacetime), after which people will (hopefully) get serious about awarding Nobel Prizes. Enough is enough.



Two invariant meanings, each with two distinct "flavors" (see below).
The ultimate *source* of all meanings (quantum masses) is the **UN**speakable cognitive vacuum (called 'John'), similar to the vacuum in QED (Peter Milonni).

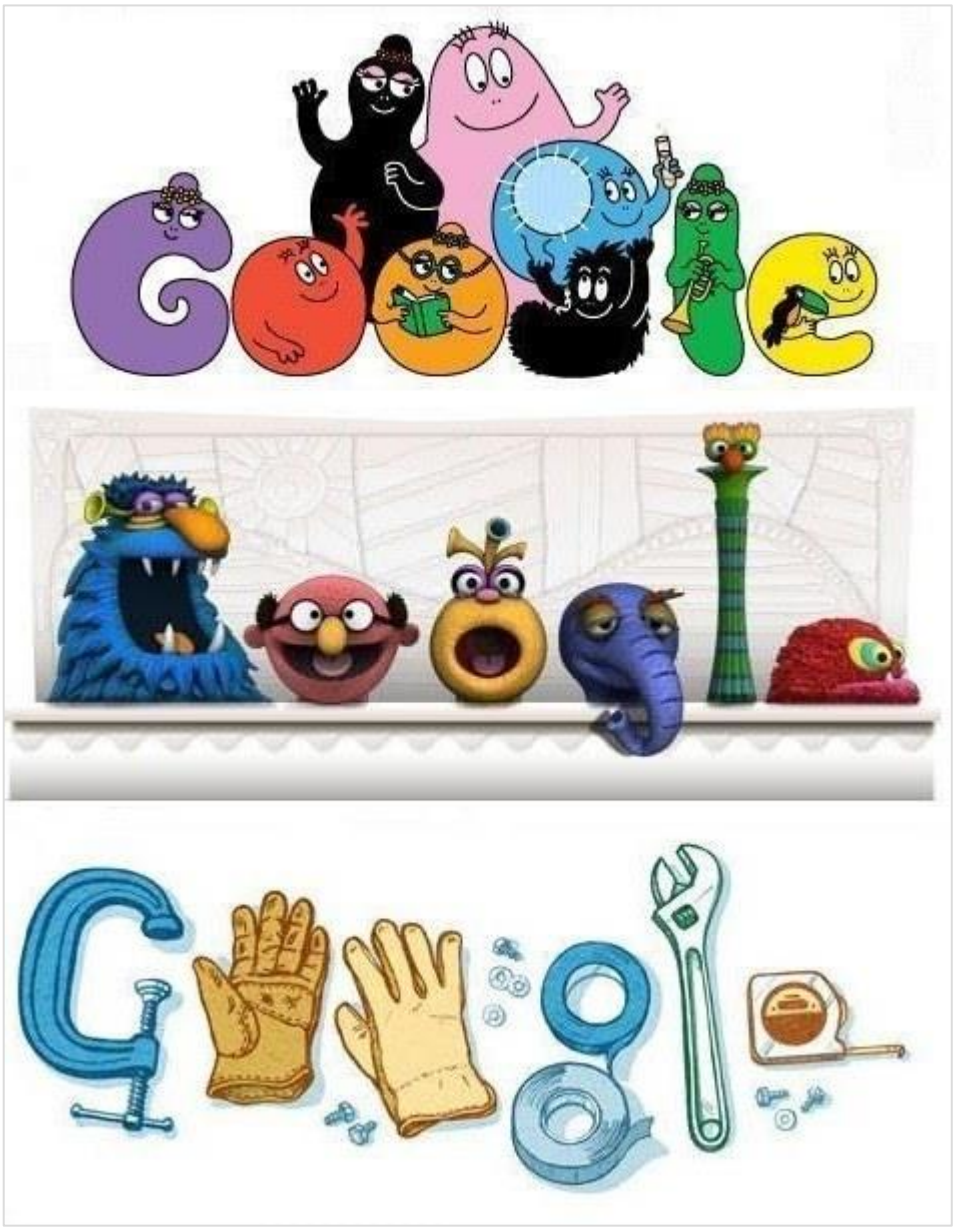
Here is the experiment with your brain, at p. **2** in Hyperimaginary Numbers:

> Consider the *meanings* explicated with these four sayings:
>
> **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 the meanings of these sayings, which of them presented similar meanings? My answer is **1** & **3** and **2** & **4**.

The four meanings above (dubbed "jackets") are not presented in the human brain as 'physical reality', like some neural "correlates" isomorphic to the text embedded in QR Code — the number

of 'meanings' which can spring from the **UN**speakable cognitive vacuum is indefinable. Likewise with the quantum vacuum: "the electric and magnetic fields do not have definite values" (Peter Milonni), which is why the energy density of the vacuum is **indefinable**.

Following the analogy suggested above, see below three "flavors" of neutrino, dubbed electron, muon, and tau. Keep in mind that they are only 'John's *jackets*', while their ultimate source, called 'John' (p. **3** in CEN.pdf), is like 'vacuum': the probability for observing John *itself* is **zero**.



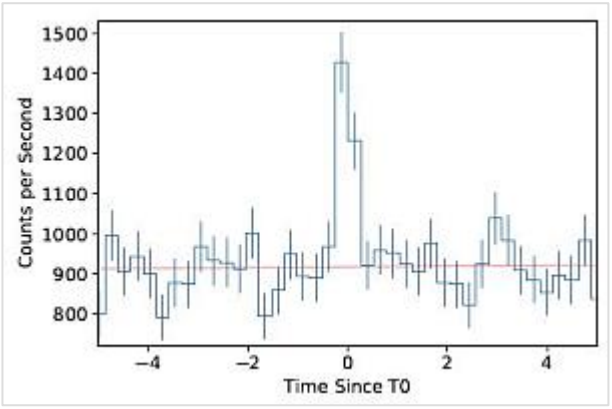
Their invariant 'meaning', as well the invariant 'meaning' of photon (see above), are safely kept in the **dual** vacuum: in spacetime engineering (p. **11** in Hyperimaginary Numbers), we work with **dual** presentations of cognitive vacuum & quantum vacuum, in line with the doctrine of *trialism* (Slide **14** in Quantum Spacetime). The initial proposal is from March 1994 (p. **94** in gravity.pdf).

As to the *origin* of gravity (see above), recall Escher's drawing hands and Fig. **1** in Gravity-Matter Duality: if gravity ⇌ matter determination was carried out among two forms of 'physical reality *out there*', you will have to introduce a new *background* spacetime to define which goes first and when, either gravity or matter. But there is no *background* spacetime with push-pull oscillations from gravity ⇌ matter determinations. Only an omnipresent, atemporal, and **pre**-geometric plenum hidden "inside" the instant 'here and now' (**A2** in Slide **19**).

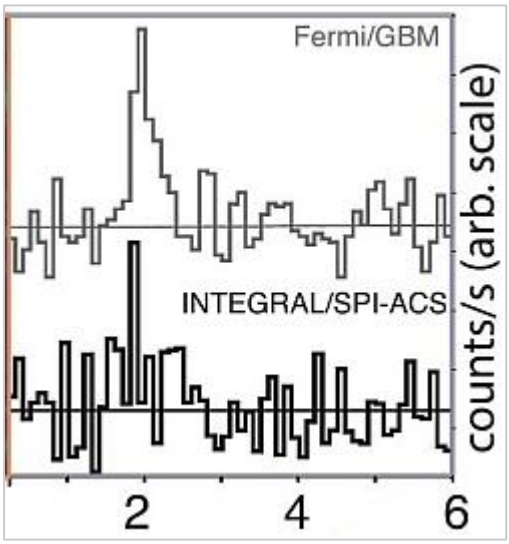
In summary, the quantum-gravitational spacetime is made by perfectly continual *physicalized* "jackets", while their ultimate source (called 'John', after John 1:1) is perfectly hidden by the "speed" of light (**A2** in Slide **19**): Luke 17:21. Not surprisingly, people don't like it.

All this goes back to February 5, 1987. I presented the widely known, ever since 1911, **fact** of 'quantum reality' (Slide **7** in Quantum Spacetime) at a seminar at the Institute for Nuclear Research and Nuclear Energy at the Bulgarian Academy of Sciences in Sofia. It was a bad idea, because I lost my job next month (p. **4** in Penrose-Norris Diagram). Although none of my former colleagues called me idiot, like Maurice de Gosson did, it was really sad to see how deeply people hate the bold **facts** we know from Erwin Schrödinger and Werner Heisenberg. Same with GWs.

Finally, look again at the event dubbed by LIGO and Virgo "GW170817" (arXiv:1710.05833v2): where is the crucial "post-merger signal" ? Notice also the actual observation by Fermi Gamma-ray Burst Monitor and INTEGRAL below, from Fig. 2 in arXiv:1710.05833v2 by LIGO and Virgo.



EM170817
17 August 2017, 12:41 UTC



Five days after 17 August 2017, on 22 August 2017 astronomers detected some *transient* object, showed below with tick marks (M. Kasliwal *et al.*, arXiv:1710.05436v1, p. 68):

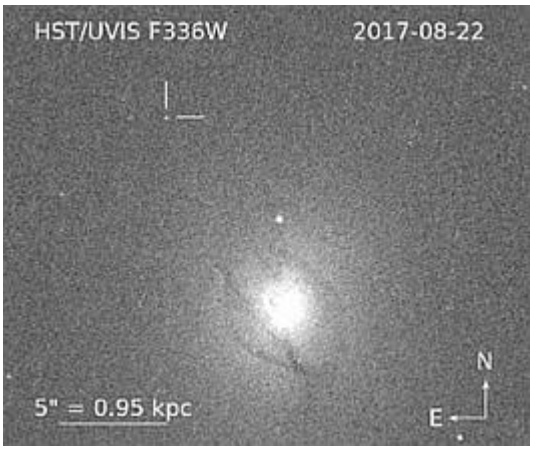
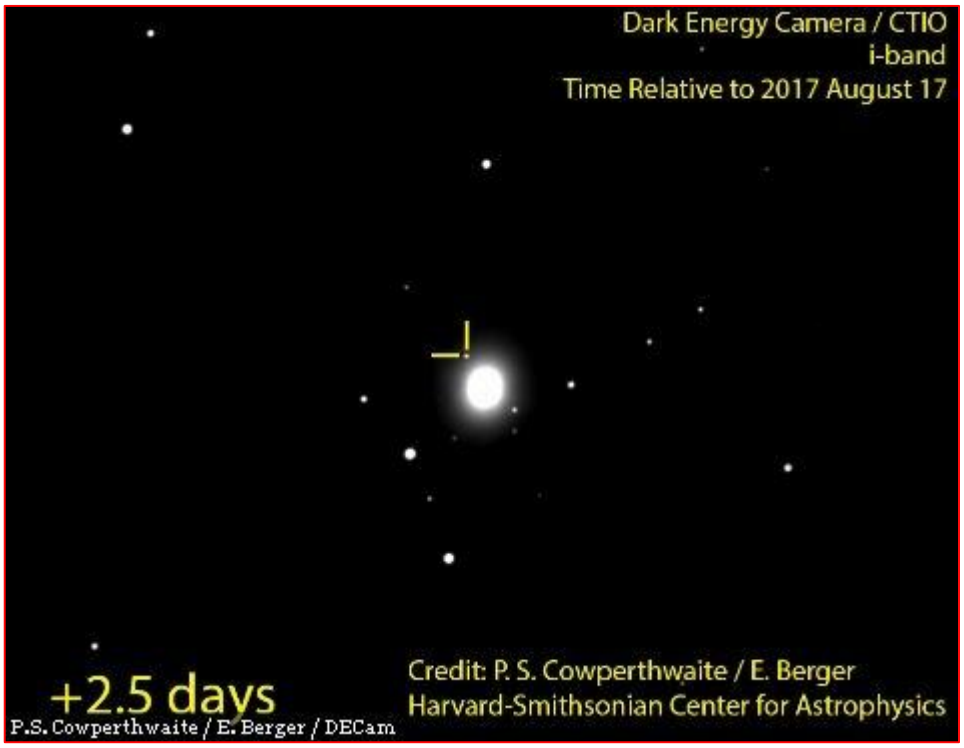


Figure S1: Hubble Space Telescope WFC3/F336W ultraviolet image of EM170817 and NGC 4993, taken 2017 August 22. North is up, east is to the left, and a 500 scale-bar is indicated. The position of the transient is shown with tick marks.

The first *verifiable* recording of EM170817 is from 17 August 2017 at 23:31 UTC: see Table S1 on p. 69 in arXiv:1710.05436v1. Nobody knows what has been happening to "GW170817" *and* to EM170817 on 17 August 2017 for **over 10 hours**, between 12:41 UTC and 23:31 UTC. Even more: nobody knows what has been happening to "GW170817" *and* to EM170817 for **over 5 days**, between 17 August 2017 at 12:41 UTC and 22 August 2017 at 20:19 UDT (ibid., p. 71).

We have only a bunch of unfettered speculations inferred from various observations of EM170817, but not a coherent theory of **all** types of gravity ⇌ matter conversions. Get real.

Let me also quote from 'Seeing One Example Of Merging Neutron Stars Raises Five Incredible Questions', by Ethan Siegel. *Forbes*, October 20, 2017 (links added; watch animation here).



> Something is fishy here.
>
> 2.) What causes so much matter to be ejected from a merger like this? Our best theoretical models predicted, for neutron star-neutron star mergers such as this, there would be a bright light signal in the ultraviolet and optical parts of the spectrum for about a day, and then it would dim and fade away. But instead, it lasted two days before beginning to dim, telling us that much, much more matter was ejected during this merger than we had anticipated. (…) If the core of this object, post-merger, collapsed to a black hole immediately, though, there would be no ejecta! If, instead, it became a hypermassive neutron star, it should have been rotating extremely rapidly (…).
>
> 5.) What causes gamma-ray bursts to be so bright in so many directions, not in a cone?

And how about the *crucial* neutrino emission? "No neutrino candidates were found in t_c ± 500 s (Alvarez-Muniz et al. 2017) nor in the 14 day period after it." (arXiv:1710.05436v1, p. 27.) How come you have short gamma-ray burst (sGRB) at the merger above, but no neutrino emission?

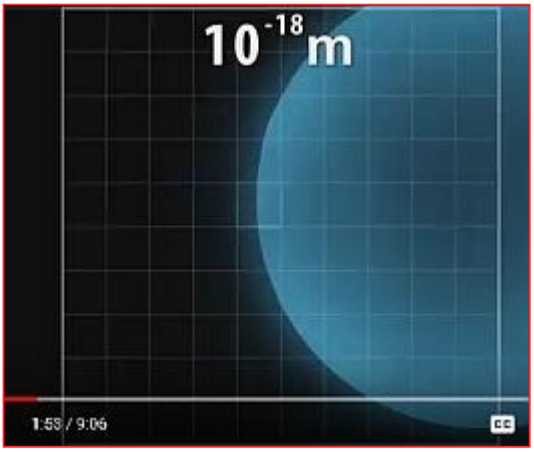
NB: The key question is this: Can you match EM170817 from 17 August 2017 to "GW170817"? Namely, can you **short-circuit** matter (EM170817) and geometry? Einstein tried many times to finds such 'short circuit', until his last days. You will need some Biblical "miracle". Forget it.

Only Advanced GW astronomy (AGWA) could help you define GW "observation" (if any) — check out the (incomplete) list above.

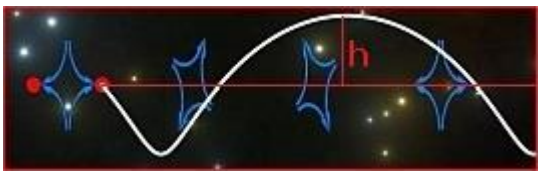
As to EM170817, many professional astronomers deeply believe that "the panchromatic photons, hereafter EM170817, are spatially, temporally and physically associated with GW170817" (Mansi Kasliwal *et al.*, arXiv:1710.05436v1, p. 5). It reminds me of the quiz I learned years ago from my teenage daughter: What do you see in the drawing below?

Obviously, this is a pink elephant walking on a tight rope, only it just fell off. Now replace the 'tight rope' with the actual EM170817 above, and you will be ready to support your LIGO & Virgo colleagues. Have you seen pink elephant walking on a tight rope? Some people did, in 1950's.

If you are new to the century-old problem of gravitational waves (ref. [12] in gw_miracles.pdf), let me stress that **g**ravitational **rad**iation (GRAD) and energy **non**conservation do exist, but cannot *in principle* be detected with LIGO, Virgo, and all GW "detectors" build on the basis of the *linearized* approximation of GR (Jose Pereira): read the explanation by Herrmann Weyl from 1944 (ref. [3] in gwa_rip.pdf). Now watch Rana Adhikari in the video at YouTube from January 5, 2017.



Pay special attention during 5:31-6:50 and 7:30-8:28 to the crucial issues "it's a matter of timing" and how to "engineer quantum noise", related to Heisenberg's uncertainty principle (8:00-8:11). To speculate about quantum "fussiness" at 10^{-18} m (see the snapshot at 1:53) and *dimensionless* GW amplitude **h**, you need new quantum gravity, yet the gravitational 'attractive' and 'repulsive' energy **cannot** be observed "online".



Why quantum gravity? Because the *linearized* approximation of GR can show only a dead frozen snapshot from **already** *physicalized* contributions from gravity, which can be used, for example, to adjust the GPS navigation (p. **16** in gravity.pdf). The detection of GWs *themselves* requires to watch them with **photons** "online", as they unfold during the time recorded with Rana Adhikari's **clock**, which is impossible *in principle*: check out Rovelli's non-metric "time". The absence of such global, non-metric "time" makes "quantum computing" impossible as well. Rana Adhikari could speculate about "timing" (5:31-6:50) **iff** his operational spacetime region was not 10^{-18} m (see above) but 10^{-2} m, because the crucial time-energy uncertainty relation (John Baez) is irrelevant at the length scale of tables and chair. With quantum "fussiness", we cannot even imagine a "rod" with length 10^{-18} m, because its two endpoints will be anything but 'points'. Also, the GW strain amplitude **h** is *dimensionless*, but nobody knows how **h** (10^{-22} in "GW170817") could be **coupled** to the dimensionless quantum-wave amplitude. In general, the entire theory of GW "detection" depends on a host of murky hypotheses supported *only* with wishful thinking. Forget it.

This whole crap (pardon my French) has nothing to do with *the* only available theory of GRAD, suggested by Hermann Bondi in 1961 and published one year later (Paper VII, p. 23 and Sec. 5, pp. 43-47). The *non-linear* energy transport by GRAD and Bondi's 'news field' are totally ignored by the proponents of GW astronomy, although they know very well their insoluble problems, at least since August 2002 (see Martin Walker, p. **2** in Schutz.pdf) We need quantum gravity to (hopefully) understand the fundamental gravity ⇌ matter conversions: see **NB** above.

The only reason for my interest in LIGO's crap is to find out whether my theory of quantum gravity and GRAD (see my note from 29 May 2015 above) can be improved (see below). Surely nobody from the theoretical physics community will react to my messages. To quote Max Planck (*Philosophy of Physics*, Norton, New York, 1936, p. 97):

> 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
November 12, 2017
Last update: November 25, 2017, 20:12 GMT

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Ethan Siegel, Seeing One Example Of Merging Neutron Stars Raises Five Incredible Questions, *Forbes*, October 20, 2017
https://www.forbes.com/sites/startswithabang/2017/10/20/seeing-one-example-of-merging-neutron-stars-raises-five-incredible-questions/

"2.) What causes so much matter to be ejected from a merger like this? Our best theoretical models predicted, for neutron star-neutron star mergers such as this, there would be a bright light signal in the ultraviolet and optical parts of the spectrum for about a day, and then it would dim and fade away. But instead, it lasted two days before beginning to dim, telling us that much, much more matter was ejected during this merger than we had anticipated."

"If the core of this object, post-merger, collapsed to a black hole immediately, though, there would be no ejecta! If, instead, it became a hypermassive neutron star, it should have been rotating extremely rapidly (...). Something is fishy here. Either we have a rapidly rotating neutron star that, for some reason, is not a magnetar, or we had ejecta for hundreds of milliseconds and our physics doesn't add up the way we think it should."

"5.) What causes gamma-ray bursts to be so bright in so many directions, not in a cone?"

Ethan Siegel, Beyond Black Holes: Could LIGO Have Detected Merging Neutron Stars For The First Time? *Forbes*, August 23, 2017
https://www.forbes.com/sites/startswithabang/2017/08/23/beyond-black-holes-could-ligo-have-detected-merging-neutron-stars-for-the-first-time/

"If there's an electromagnetic counterpart being sought, it's highly likely that we're not looking for a black hole merger, but something far more novel and exciting!"

Ethan Siegel, Newest LIGO Signal Raises A Huge Question: Do Merging Black Holes Emit Light? *Forbes*, June 8, 2017
https://www.forbes.com/sites/startswithabang/2017/06/08/newest-ligo-signal-raises-a-huge-question-do-merging-black-holes-emit-light/

"The AGILE satellite from the Italian Space Agency detected a weak, short-lived event that occurred just half a second before the LIGO merger, while X-ray, radio and optical observations combined to identify a strange afterglow less than 24 hours after the merger."

"If either of these were connected to the black hole merger, it would be absolutely revolutionary. There is so little we presently know about black holes in general, much less merging black holes. (…). We've only just this year determined that black holes don't have hard shells encircling the event horizon, and even that evidence is only statistical. So when it comes to the possibility that black holes might have an electromagnetic counterpart, it's important to keep an open mind, to look, and to go wherever the data takes us."

Ethan Siegel, Nothing Escapes From A Black Hole, And Now Astronomers Have Proof, *Forbes*, May 31, 2017
https://www.forbes.com/sites/startswithabang/2017/05/31/nothing-escapes-from-a-black-hole-and-now-astronomers-have-proof/

"If event horizons are **real** (emphasis mine – D.C.), swallowed stars wouldn't create a transient

signal, but star colliding with a hard surface would create a significant burst of light. (…) Of course, it's not really possible to prove that the event horizon is **real** (emphasis mine – D.C.), but this work allows some impressive constraints to be placed."

NOTE

Read Ethan Siegel, August 23, 2017 above: "… it's highly likely that we're not looking for a black hole merger, but something far more novel and exciting!"

Bingo! Instead of suggesting that stars may collide with some "hard surface" (Wenbin Lu *et al*., arXiv:1703.00023v1), recall that (**i**) the alleged "event horizon" (Dieter Brill) is not "real", simply because it can't, and (**ii**) in cosmological spacetime containing matter ("vacuum spacetime" is an oxymoron), **timelike** naked singularities (Rituparno Goswami *et al*., arXiv:gr-qc/0410041v1) are just **unavoidable**. These two facts, combined with the counterfactual proposition that even one *timelike* naked singularity would have killed the entire universe (*reductio ad absurdum*), require brand new interpretation of **all** recorded bursts of light, which the astronomers at LIGO and Virgo are desperately trying to explain with "black holes" (Angelo Loinger, arXiv:physics/0402088v1). Of course I will be very happy to elaborate, with details (pp. **126**-**127** in gravity.pdf).

Thus, **all** observations of "significant burst of light" — including EM170817 — require new theory of mass-energy release in astrophysics, as suggested by Banesh Hoffmann in 1964, which opens the possibilities for GRAD and the evolution equation in cosmology (Sec. **3** in CEN.pdf): read Arthur Conan Doyle above. If GRAD and the *wave-like* holomovement (see above) of fish (shown below) are produced by cognate qualities of biological and quantum-gravitational spacetime, leading to dynamic "swathe", we could seek similar explanation of 'quantum mass' (see above) as well, including the so-called Higgs boson (David J. Miller below): think of proton's mass (Slide **10** in Quantum Spacetime) as **sustained** cluster of standing quantum-gravitational "waves". This is completely unchartered territory, based on the vacuum as *Res potentia*. We don't know how to present mathematically the dimensionless "amplitudes" of quantum-gravitational "waves" in their joint spacetime, in line with the proposed evolution equation in cosmology above. Read about the RS spacetime and the 'attractive'-and-'repulsive' gravity in p. **77** and pp. **118-119** in gravity.pdf.

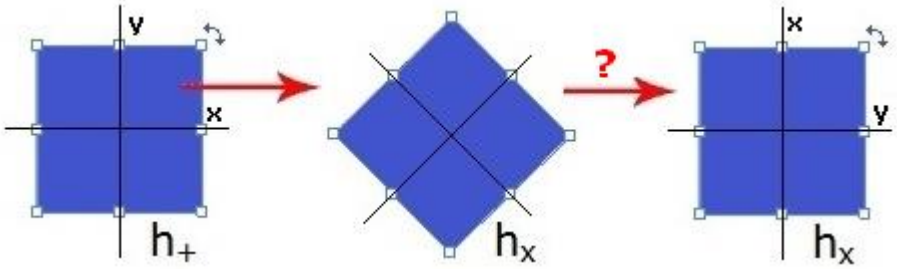
David J. Miller, A quasi-political explanation of the Higgs Boson

A quasi-political explanation of gravity, Fig. 3 in holon.pdf

Needless to say, this is a *very* speculative Ansatz. Currently, it cannot be cast into precise quantitative theory, firstly because of the absence of mathematical formalism (p. **20** in Hyperimaginary Numbers). But at least it offers, in my humble opinion, a new approach to all phenomena in quantum-gravitational physics (and in life sciences), and also does not lead to obvious contradictions with firmly established and indisputable facts, in line with the principle of Arthur Conan Doyle above.

But do we have an alternative theory, presented with mathematical equations, so that we can make precise calculations and publish scientific articles in peer-reviewed academic journals, and some day get the Nobel Prize? Well, recall the *exact* **45º angle** between two linearly independent polarization states h_+ and h_x, which are instructed by Kip Thorne to be in "superposition" along the **time** read with the clock of Rana Adhikari above. Let me quote from p. **1** in gw_miracles.pdf:

> As explained by M. Vallisneri *et al*. in [3, p. 6], "the effect of each GW polarization is to contract fractionally the proper distance along one axis, while expanding it along the other (these axes being (x; y) for h_+, and axes rotated by **45º** with respect to (x; y) for h_x)." Look also in [4, p. 33]: "A generic gravitational wave can thus be understood as a superposition of two oscillating tidal fields that propagate at the vacuum speed of light."
>
> **Q1**: What phenomenon could possibly produce an **exact 45° angle** between h_+ and h_x *and* keep it **exactly** fixed **within** the "superposition" of two oscillating metric fields, in such way that the latter will *never* conflate and intermingle? What could sustain the *phases*?
>
> The two linearly independent polarization states h_+ and h_x, each of which "has its own gravitational-wave field" [10], are "akin to "stereo sound" information" [4, p. 8], but the physical nature of such "superposition" of *metric* fields is totally unclear. It is certainly not like a superposition of two quantum states of the famous Schrödinger's cat, live cat & dead cat. According to Freeman Dyson [2, p. 8], a generic GW "may be considered to be a *coherent* superposition of a large number of gravitons." Here comes the second question.
>
> **Q2**: How could these "gravitons" [10] be arranged to keep the **45° angle** between h_+ & h_x ? For if the angle reaches **90º**, the net effect from h_+ & h_x will be **zero**.

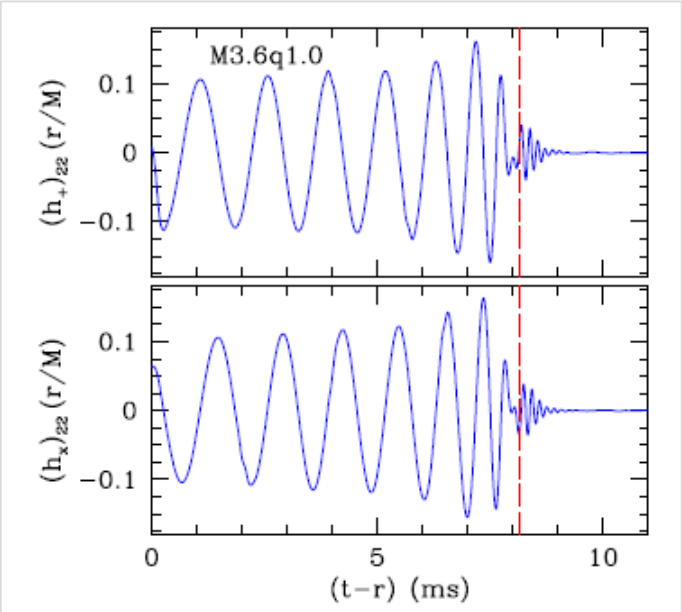


Why people like Kip Thorne suggest new topological structure of spacetime, only to facilitate "propagation" of metric "oscillations" at **45º angle**, with the speed of light? It's a diagnose.

Still not convinced? Look at the GW170817 propaganda below (link here): "When two orbiting neutron stars collide, they merge and form a black hole, releasing enormous amounts of energy in the process."

How could this happen? Read Luciano Rezzolla *at al*., 13 May 2010, arXiv:1001.3074v2 [gr-qc]: "Figure 15 shows the waveforms in the two polarizations of the (dimensionless – D.C.) gravitational-wave amplitude $(h+)_{22}$ (upper panels) and $(h\times)_{22}$ (lower panels) for all the models considered and as computed from the gauge-invariant perturbations of a Schwarzschild spacetime."

In the first place, are we living in some Schwarzschild vacuum full of "gravitons" (Kip Thorne)? What is the "true" (if any) speed of GWs (Steven Carlip)? Anyway, see Fig. 15:



Looks impressive, only LIGO and Virgo did not detect any black hole "ringdown" or "post-merger signal" in GW170817. No jets, like those advertised by NASA above, nor any neutrino candidates whatsoever "in the 14 day period after it": recall the quiz above. Nobody knows what could be the *origin* of EM170817. It was **not** caused by any "black hole" and all those GW "templates" showing some "black hole" after binary neutron star merger (Kip Thorne, 9:15-9:20) are for the birds.

All you can do is to wave your arms *rapidly* to produce "gravitons" (Kip Torne) and then use Advanced GW astronomy (AGWA) to fully understand your findings, after which you can publish your research articles, with tons of mathematical equations, in peer-reviewed academic journals, and some day you may get a **lot** of money. You just never know. Luciano Rezzolla, for example, got 14 million EUR — taxpayers' money — for manufacturing an "accurate image of a black hole". In contrast, I work as independent researcher and don't accept donations. Never did never will.

Here people may ask, but what if "GW170817" was nevertheless real? This tantalizing question can be addressed, and possibly resolved, only after we develop GRAD theory. If the answer turns out to be in the affirmative, it will be like the old joke about three men in a mental clinic, who had to pass the test 'how much is 2+2': read about it on p. **5** in readme.pdf, available after extracting chakalov.zip (app. 18Mb) to your hard drive. Then the three Nobel Prize laureates will have to acknowledge in public that "*something unknown is doing we don't know what*" (Arthur Eddington) and quickly return their awards to the Royal Swedish Academy of Sciences. It will be great fun to watch it, but unfortunately it can never happen. They already got the cash.

Finally, I wish to thank all astrophysicists supporting GW "astronomy" for their relentless efforts to explain EM170817. I learned a lot from them, and I am still learning about 'things we know that we don't know' in General Relativity, since 1972. Details in p. **9** in Gravity-Matter Duality.

D. Chakalov
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CONCLUSION

Many people (I'm one of them) prefer to glance at the title and abstract of a paper, and then read it from bottom-up, starting from the last section, usually entitled 'conclusion'. So here's the title:

The 2017 Nobel Prize for physics was awarded to a **FRAUD**.

There is no abstract, but the conclusion is very simple: we do not know the "short circuit" between gravity and matter (**NB** above). Therefore, all efforts to detect gravitational waves (GWs), after Russell Hulse and Joseph Taylor got the 1993 Nobel Prize in physics for "a discovery that has opened up new possibilities for the study of gravitation", should have been focused on this **crucial** issue. In short, GW150914 is scientifically impossible, and can only be **FRAUD**.

Don't jump to tensor calculus to sweep the garbage under the rug. Wikipedia acknowledged that we don't know how "the gravitational field can do **work** on matter and **vice versa**" (emphasis mine – D.C.). You cannot bypass the crucial issue of **work** (Piotr Chrusciel) by trying to detect "pure geometry" with laser beams and then speculate about fractional shrinkage/inflation of the spacetime metric (Steven Carlip).

Albert Einstein was fully aware of the problem with the "short circuit" between gravity and matter (**NB** above), and was trying, until his last days, to discover the so-called *Gesamtfeld* (total field). The task is highly non-trivial: on the one hand, gravity is **not** physical field, but on the other — gravity should **act** on matter and at *the same instant* (Sic!) matter should act **back** on gravity, as depicted in Escher's drawing hands.

The only way to understand the gravity ⇌ matter relations is with gravity-matter duality. The detector of **g**ravitational **rad**iation (GRAD) must be endowed with *self-acting* faculty, just like the human brain — it acts on itself by negotiating (Escher's drawing hands above) its future state with its own *potential* states. Gravity as such does **not** exist, as it originates from the *potential* states of matter and fields and hence can be *physicalized* with **any** physical stuff that is the "source" of gravity. It is not physical field either — the "gravitating" matter interacts with **itself**, *via* its potential "gravitational" state (called John), and the effects of this **self-interaction** are resubmitted to the right-hand side of Einstein's field equations, leading to GRAD and energy **non**conservation. What we call "gravity" and "quantum state" originate from **self-acting** matter.

If Kip Thorne tells you that he has detected GWs, don't buy it. He cannot detect the gravitational *potential* reality itself, because **it** does not live *anywhere* in the light cone. It is "just in the middle between possibility and reality" (Werner Heisenberg). More in pp. **21-22** in Hyperimaginary Numbers and in my note above.

D. Chakalov
December 3, 2017, 10:00 GMT