

Gravitational Wave Miracles?

D. Chakalov
35A Sutherland St
London SW1V 4JU
chakalov.net

Abstract

The hypothesis of gravitational wave, suggested by Albert Einstein in 1916, still poses outstanding challenges, which have to be resolved by the theoretical physics community as soon as possible.

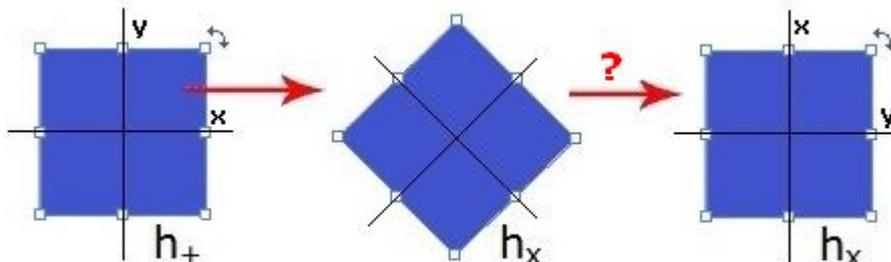
The idea of ‘gravitational wave’ (GW), suggested by Albert Einstein in 1916 [1], poses a number of non-trivial questions, which still have not been resolved by the theoretical physics community. We do not know how to define GWs in the full non-linear regime where the spacetime itself is dynamic [8]: ‘waves with respect to what?’ is the crucial question about the *boundary* of spacetime [12], which could be discussed only after we resolve the three issues below. Until then, I’m afraid the ideas of GW and its detection [9] will continue to look like a bunch of “miracles”, which is totally unacceptable in science [2].

Let me begin with the critical **45° angle** between two linearly independent polarization states h_+ and h_x , which are instructed to be in “superposition” along time (t) read with a clock. 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 **45°** 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 **90°**, the net effect from h_+ & h_x will be **zero**.



Moreover, while “it would be hopeless to look for exact solutions for the gravitational waves emitted by realistic astrophysical sources” [5], we must nevertheless assume that strong GWs at the vicinity of a hypothetical “binary black-hole merger” [6] do exist, which brings us to the last question.

Q3: How could strong GWs sustain their properties of very weak GWs [3, 4, 9, 10] while interacting with matter and fields and other GWs, for over one billion years [7]?

We must not sweep these crucial questions under the rug: “miracles” do not exist. It is impossible to observe something that cannot exist, such as pink unicorns dancing with red herrings or some “back hole” merger [6] emitting “gravitons” by linearized GWs [2, 11]. The so-called GW150914 [7] is an insult to our intelligence.

If the reader disagrees, I suggest to consult Albert Einstein and prove that the Universe is “a spatially bounded material system” [12], and then install GW “mirrors” [9] *exactly* at null-and-spacelike infinity.

References

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2. D. Chakalov, GW150914: Are Cows Spherical? [viXra:1606.0228v5](https://arxiv.org/abs/1606.0228v5), 19 July 2016.
3. Michele Vallisneri *et al.*, The Emergence of Gravitational Wave Science, [arXiv:1607.05251v1](https://arxiv.org/abs/1607.05251v1) [gr-qc], 18 July 2016.
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5. Michele Maggiore, *Gravitational Waves: Theory and Experiments*, Oxford University Press, 2007. Excerpt from p. 32 at [this http URL](#).
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9. B. Schutz, Mathematical and Physical Perspectives on Gravitational Radiation. In *50 years of the Cauchy problem in General Relativity*. Electronic proceedings of the Cargèse Summer School on Mathematical General Relativity. July 29 - August 10, 2002, Cargèse, Corsica, France. Excerpt at [this http URL](#).

10. Kip Thorne, *Gravitational Waves*, Part A: Gravitational-Wave Theory and Sources, [Overview of GW Science](#), Slides for [Lectures 1 and 2](#), Caltech's [Physics 237-2002](#), Caltech, 28 July 2002. Two slides available at [this http URL](#).
11. D. Chakalov, Gravitational Wave Astronomy: RIP. Online paper, 18 May 2016, available at [this http URL](#).
12. Albert Einstein, Über Gravitationswellen, *Sitzungsberichte der Königlich Preußischen Akademie der Wissenschaften* (Berlin), Seite 154-167 (31. Januar 1918).

Let us consider a spatially bounded material system, whose matter density and electromagnetic field vanish outside some region. Let S be the boundary surface, at rest, which encloses the entire material system. Then, by integration of the fourth equation over the domain inside S , we get

$$-\frac{d}{dx^4} \int_V (\mathcal{T}_4^4 + t_4^4) dV = \int_S (t_4^1 \cos(nx_1) + t_4^2 \cos(nx_2) + t_4^3 \cos(nx_3)) d\sigma.$$

One is not entitled to define t_4^4 as the energy density of the gravitational field and (t_4^1, t_4^2, t_4^3) as the components of the flux of gravitational energy. But one can certainly maintain, in cases where the integral of t_4^4 is small compared to the integral of the matter energy density \mathcal{T}_4^4 , that the right-hand side represents the material energy loss of the system. It was only this result that was used in this paper and in my first article on gravitational waves.

Quoted after: Carlo Cattani and Michelangelo De Maria, *Conservation Laws and Gravitational Waves in General Relativity (1915-1918)*, in *The Attraction of Gravitation*, ed. by John Earman *et al.*, Birkhäuser, 1993, pp. 63-87 (emphasis mine - D.C.).

Addendum

Let's look at the facts about GWs and their detection. A peculiar astronomical object, dubbed [PSR 1913+16](#), has been losing kinetic energy, and Russell Hulse and Joseph Taylor decided to explain the "energy loss of the system" [[12](#)] by applying the old Tanzanian saying:

How do we know that Father Christmas has a beard? We know it, because snow falls when he shakes his beard.

Then Russell Hulse and Joseph Taylor were awarded Nobel Prize in [1993](#) for explaining how we could get snow from Father Christmas' beard, and in February 2016 many people claimed to have detected it [[7](#)]. But what if the "snow" had *completely* different origin?

All my papers on gravitational radiation and its detection, starting from the first one submitted to arXiv.org in July 2005 and entitled ‘Are Gravitational Waves Directly Observable?’ (Sun, 17 Jul 2005 18:59:24 GMT, 196kb), have been bluntly rejected by the moderators at arXiv.org, without showing any factual error or missing “original or substantive research” (cf. “[Inappropriate format](#)” at arXiv.org). This latest manuscript, submitted to arXiv.org on Tue, 30 Aug 2016 21:58:03 EST (see below), [was again rejected](#) by arXiv.org talibans.

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I believe nobody could tolerate such [brutal taliban censorship](#).

As to the problems of gravitational radiation, I believe we must define the spacetime “globally in a consistent way” ([Piotr Chrusciel](#)), without any GW “mirrors”, and seek explanations of (i) the “dark” origin of [gravitational rotation](#) and (ii) the ‘tug of war’ manifestation of gravity, known as “[dark matter](#)” and “[dark energy](#)”. One century ago, Albert Einstein [1] could not have predicted such gravitational phenomena.

Nowadays we know that energy conservation in the presence of gravity cannot be defined: watch [Paul Steinhardt](#). It is manifestly pointless to try to “explain” how snow falls from Father Christmas’ beard by postulating such non-existent energy conservation viz. “energy loss of the system” [12] due to GWs, as suggested by [Russell Hulse and Joseph Taylor](#).

Again, it is impossible to observe something that cannot exist, such as pink unicorns dancing with red herrings or some “back hole” merger [6] emitting “gravitons” by linearized GWs [2, 11]. The so-called GW150914 [7] is an insult to our intelligence. [Period](#).

D. Chakalov

2 September 2016

Subject: Re: [moderation #174254] arXiv: submit/1652297 removed
 Date: Fri, 2 Sep 2016 09:49:23 +0000
 Message-ID: <CAM7EkxmlHBeuc7hrdfNqUD8kMic4kpo=rg-TBs8TgsT_95hPg@mail.gmail.com>
 From: Dimi Chakalov <dchakalov@gmail.com>
 To: arXiv Moderation <moderation@arxiv.org>
 Cc: David R Morrison <drm@physics.ucsb.edu>,
 Eberhard Bodenschatz <eberhard.bodenschatz@ds.mpg.de>,
 Paul Ginsparg <ginsparg@cornell.edu>,
 Daniel Gottesman <dgottesman@perimeterinstitute.ca>,
 Greg Kuperberg <greg@math.ucdavis.edu>,
 Shude Mao <shude.mao@manchester.ac.uk>,
 Andrew Millis <millis@phys.columbia.edu>,
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 Karen Vogtmann <k.vogtmann@warwick.ac.uk>,
 Jake Weiskoff <jsw73@cornell.edu>

My dear arXiv Moderation,

On Thu, 01 Sep 2016 10:15:18 -0400,
 Message-ID: <rt-4.4.0-5967-1472739318-624.174254-6-0@CULibrary>,
 you wrote:

> It is inappropriate to resubmit previously rejected content without
 > first appealing the decision and receiving a positive response.

Two things.

1. I did contest your "decision" to reject my previous submission,
 arXiv:submit/1619058.

In your email from Mon, 08 Aug 2016 11:04:23 -0400, you wrote:

"Our volunteer moderators determined that your article does not
 contain sufficient original or substantive research to merit inclusion
 within arXiv."

In my reply from Mon, 8 Aug 2016 19:18:44 +0000, I respectfully asked
 you to provide at least **one** example of missing "original or
 substantive research". And in my later email from Mon, 8 Aug 2016
 23:21:59 +0000, I wrote:

"NB: Could you show at least 1 (one) example of "original or
 substantive research" that is missing in the manuscript you just
 rejected ? What did I miss in terms of "original or substantive
 research"? Just one example, please."

Fact: You failed to show any example of missing "original or
 substantive research". Therefore, your "decision" is void.

NB: Unless you are totally uneducated people (I call them "talibans"),
 you **MUST** show at least ONE example of missing "original or substantive
 research".

2. My second updated submission, arXiv: submit/1652297, contains new
 additional facts, which prove -- beyond any reasonable doubt -- that
 the original proposal by Albert Einstein from 1918 (cf. the new ref.
[\[12\]](#) in arXiv: submit/1652297) is **wrong**. Thus, I added new "original
 or substantive research".

NB: Could you show at least 1 (one) example of "original or
 substantive research" that is missing in my second updated submission,
 arXiv: submit/1652297?

I trust you are educated people, not "talibans", and I am eagerly
 awaiting your reply. After all, you represent highly respected Ivy
 League institution, Cornell University. There can be no place for
 "talibans" there.

Yours sincerely,

D. Chakalov
chakalov.net

Subject: Re: [moderation #174254] arXiv: submit/1652297 removed
 Date: Fri, 2 Sep 2016 19:28:00 +0000
 Message-ID:
 <CAM7EkxmCxCSSwoSCVN8DByXGMERnMPy5SrSgVzhx0A3UbdCEfQ@mail.gmail.com>
 From: Dimi Chakalov <dchakalov@gmail.com>
 To: arXiv Moderation <moderation@arxiv.org>
 Cc: David R Morrison <drm@physics.ucsb.edu>,
 Eberhard Bodenschatz <eberhard.bodenschatz@ds.mpg.de>,
 Paul Ginsparg <ginsparg@cornell.edu>,
 Daniel Gottesman <dgottesman@perimeterinstitute.ca>,
 Greg Kuperberg <greg@math.ucdavis.edu>,
 Shude Mao <shude.mao@manchester.ac.uk>,
 Andrew Millis <millis@phys.columbia.edu>,
 Jennifer Ross <rossj@physics.umass.edu>,
 Karen Vogtmann <k.vogtmann@warwick.ac.uk>,
 Simeon Warner <simeon.warner@cornell.edu>,
 Jake Weiskoff <jsw73@cornell.edu>,
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Dear arXiv Moderation,

> Our moderators have considered your appeal and maintain that your
 > submission is not appropriate for arXiv. This decision was upheld by
 > the appellate moderator

Please provide the name of your "appellate moderator". Next time she/he will hear from my lawyer.

If you refuse to disclose the name of your "appellate moderator", my lawyer will contact you viz. the President of Cornell University, Dr. Hunter R. Rawlings, and the Office of the Board of Trustees.

Billions of US dollars and euros have been wasted for "GW astronomy", and I will relentlessly chase all people who deliberately block publications revealing such horrible waste of taxpayers' money.

D. Chakalov

NOTE

Who is the "appellate moderator" (if any), mentioned by the anonymous arXiv.org moderator? Perhaps a close ally of Lyin' Donald (a.k.a. [Donald Trump](#)), who would fiercely block all **facts** about the enormous **FRAUD** [2, 11] known as GW150914 [7]? Or simply a person who deeply believes in "miracles", such as the so-called polarization angle [above](#)? We all will find it out very soon, and I will trigger the review of "GW astronomy" with utmost pleasure and satisfaction.

D. Chakalov
 3 September 2016

P.S. As of 10 September 2016, no reply to my second email from [2 Sept 2016](#) has been received. Truth never triumphs - its opponents just die out ([Max Planck](#)). Besides, he who is born to be hanged need not to be drowned.

D. Chakalov
 10 September 2016