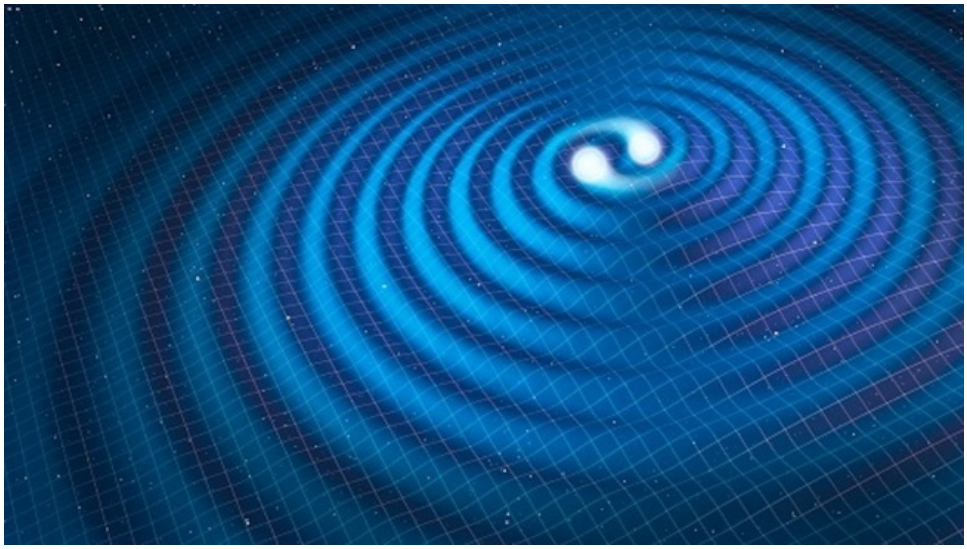
Does LIGO Prove General Relativity?

by Clark M. Thomas



OVERVIEW

LIGO-detected "gravitational waves" are real. The successful experiment in early 2016 did open up a new form of astronomy. However, despite the hype, the initial explanation for what was discovered neither confirms nor denies Einstein's full theory of General Relativity, including the concept of gravity membranes (branes). It merely confirms his 2016 guess that gravity waves should be generated, and that they potentially could be detected and measured. That's a long way from the core of his GR thesis.[1]

"Spacetime" is a cool idea, but it merely records the timely effects of motion within a 3D Universe, making up frame-specific 4D spacetimes – with seemingly infinite discrete inertial frames of

[1] http://www.huffingtonpost.com/deepak-chopra/entry9347750_b_9347750.html

reference.[2] Einstein's idea of "c" being the somewhat mystical absolute limit of measured speed in any direction simply acknowledges the initial acceleration of electromagnetic particle strings from their graviton base within a frame of reference. Speed of light within a vacuum is only the initial burst of acceleration for each yin/yang photon string as it leaves its graviton "mother ship."[3]

A better explanation for the waves detected by LIGO is a 21st century paradigm of push/shadow gravity – within a 3D set sea of "quantum foam" (primarily Yin/Yang particles, Y/Y strings, Y/Y graviton rings, and some larger particles). Waves themselves naturally propagate in many media, such as seas of water, air – or in busy galactic "space."

Rubbery sheets of spacetime gravity are a 2D math fiction not needed to explain real waves within any 3D media. The scientific law of parsimony points away from too-simple, two-dimensional GR membranes. The idea of 2D structures appears to simplify reality, but this model needlessly complicates our understanding. Putting a quantum spin on tractor-beam gravity does not help.[4]

Push/shadow gravity particles flow from all directions within the 3D cosmic sea of relatively fixed energy/matter particles and their emergents. In other words, real gravity comes about from an interpenetrating, omnidirectional, multiversal flow of what used to be incorrectly envisioned as "hyperluminal corpuscles." These are strings and loops of joined corpuscular energy/matter spheres possessing both primary (neither + nor -), and secondary (either + or -) electromagnetism, not tiny billiard balls. Said in a third way, there is a frame-independent "quantum foam" that is 3D universal; and through this relatively static foam flows a myriad of much smaller energy/matter units from all directions

---

[2] http://astronomy-links.net/timearrow.html

[3] http://astronomy-links.net/GravitonComponents.html

[4] http://astronomy-links.net/GGvsGR.html

of the multiverse, and whose net effects constitute push/shadow gravity.

All standard model gravity theories that do not clearly take into account the sub-Planck dimension[5] of energy/matter particles are like building lovely castles in the sky. Add in the century-old idea of sub-Planck quantum foam forces, and you have a random mess for the castle's foundation. Only when Y/Y particles are properly described and understood do we have a chance to complete a logical and parsimonious physics, ranging from the smallest dimensions (10^{-39} meters for the fundamental energy/matter units), up to the possibly unlimited dimensionality of the multiverse itself.

Given that the very smallest known particles, neutrinos, are about 10 to the minus 22nd meters in size (or slightly smaller) – and that almost everything else is much larger, such as atoms at 10^{-14} m – that means individual Y/Y particles (the true "building blocks of Nature") are about 10^{17} logarithmic dimensions smaller than neutrinos, and about 25 logarithmic dimensions smaller than individual atoms.

By comparison, we humans are in the 0.6×10^{1} meters range. Something 10^{17} logarithmic powers larger than us would be the relative size of Omega Centauri, a large remnant galaxy core with millions of stars.[6] The dimensional difference is incredibly much greater when we are comparing atoms and molecules to component Y/Y particles; not neutrinos to Y/Y particles.

What experimental science sees as fundamental building blocks are really complex structures of various combinations of Y/Y particles, the true building blocks. Not only are there huge size differences, there are fundamental electromagnetic differences. Y/Y particles can express *primary* (non-polar) electromagnetism, as well as *secondary* (bipolar) magnetism in larger structures.

---

[5] https://en.wikipedia.org/wiki/Planck_scale

[6] http://scaleofuniverse.com

At the smallest dimensions of Y/Y particles – including strings and rings of them – electromagnetic energy and matter are primarily unified, but differentially expressible.

For example, extended strands of Y/Y particles expressing their primary electromagnetism compose and express the strong nuclear force which holds together protons in atomic nuclei.

LIGO

Let us now look at the original 2016 LIGO experiment: LIGO stands for **L**aser **I**nterferometer **G**ravitational-Wave **O**bservatory.[7] Basically, it is a souped up Mickelson-Morley apparatus.[8] In the late 19th century the original apparatus seemed to disprove the aether wave theory of light.

Subsequent experiments with slits have shown that photon streams exhibit both particles and waves, the photovoltaic effect. That's how Einstein got his 1921 Nobel, awarded in 1922.[9] The 21st century LIGO apparatus has much longer baselines, and is much more sensitive than anything possible in the 19th century.

Furthermore, there are two identical LIGO experimental baseline sites operating at the same time, with about two thousand miles separating them. This distance allowed scientists to measure timing differences, thereby excluding certain possible false positives. Timing differences also allowed them to confirm that gravitational waves travel at electromagnetic speeds.

Einstein indicated that gravitational waves would have a long wave length. There are potentially measurable waves from supermassive black hole phenomena, and ultimately from the big bang itself, that would require LIGO satellites at Lagrangian

---

[7] https://www.ligo.caltech.edu

[8] http://scienceworld.wolfram.com/physics/Michelson-MorleyExperiment.html

[9] http://dafix.uark.edu/~danielk/Talks/CollMike.pdf

points[10] to establish sufficiently long baselines. What the first generation LIGO luckily/quickly measured is the intimate circular dance and snap merger of two fairly small black holes, each with several solar masses, about 1.3 billion light years away. No optical or standard radio telescope could capture such waves. Other gravity waves were later measured from similar mergers.

WAVES AND MEDIA

There are other types of waves more easily detected. Most of these are terrestrial gravity waves, or familiar electromagnetic waves. Gravity waves include oceanic waves. Electromagnetic waves range from long infrared to X-rays. We are most familiar with sound waves in the air. Standard radio telescopes can detect long infrared wave lengths. Even the Hubble can detect some near infrared frequencies. The radar detector police use to detect your speed has a short-diameter dish to capture short Doppler waves bouncing off your vehicle.

All electromagnetic and gravitational waves travel near the speed of light in a vacuum. Oceanic tsunami waves, in contrast, travel through molecular water at about 500 mph. Standard waves generated by winds and gravity are much slower, with much less energy. There are also atmospheric sound waves traveling about 600 to 700 mph, depending on their altitude. Waves can also vibrate more rapidly through metals and other structures. The oil industry, seismologists, and scientists studying the deep structure of Earth all use interpreted wave signals. Waves are a fundamental aspect of Nature.

There has long been a discussion as to whether space is empty, or full of "stuff" (such as quanta, quantum foam, or ethers), or maybe just an obscenely large number of vast 2D gravity membranes called branes.

---

[10] https://en.wikipedia.org/wiki/Lagrangian_point

In ancient Greece there was the notion by Parmenides of space being fully occupied by matter. The opposing atomists, notably Democritus, rejected this denial of motion – substituting atomic particles that bounced off each other within absolute space. The atomists envisioned space as both "full" and dynamic. Newton did his cosmological math with the idea that 3D absolute space is empty, and that gravity travels infinitely fast. He was entranced with Fatio's atomistic idea of push gravity involving tiny balls of impacting matter, but eventually rejected Fatio's kinetic model for his own version of alchemy.[11]

About sixty years after Fatio's initial model there was Le Sage and his push/shadow model, which was very similar to Fatio's. Due to the limitations of empirical science in the 17th through 19th century, and indeed into much of the 20th century, Le Sage's crude kinetic model only went so far. It was essentially rejected, and properly so, just before Einstein developed his elegant General Relativity equations.

General Relativity goes beyond Special Relativity, with the idea of matter following gravity slopes of branes. The steeper the slope, the stronger the mass effect of gravity. The mass and diameter of each object determines the shape of its indentation into its local membrane. This tractor-beam model of gravity requires multiple branes, with strings of attracting gravitons pulling objects toward adjacent membranes. This model is absurdly weird, but the "right" math can make it appear OK.

There is MUCH wrong with this absurd idea, even though Einstein was clever enough to design formulas that confirmed after-the-fact measurements of push/shadow gravity to the level that the precision of his formulas are "good enough" to predict such phenomena as Mercury's precession, and how GPS is influenced both by SR and GR.[12]

---

[11] http://astronomy-links.net/RealTOE.pdf

[12] http://milesmathis.com/merc.html

The effect of Einstein's magical math a century ago was to stun all astrophysical competition, like an electric eel stuns its prey – returning cosmology to an ossified era not known since before Galileo, when the best minds had defended the geocentric model for almost a thousand years. Early last century Einstein thereby became a scientific demigod for the skeptical modern age. After his death Stephen Hawking has assumed the odd demigod aura. In other words, as long as the math looks simple and accurate, who cares if that math describes the real truth.

The greatest minds have not meshed General Relativity with the various quantum theories, as these two general world views are fundamentally incompatible. This problem is also called the Heisenberg cut.[13] Quantum theory, with major modifications, is more promising as part of a potential theory of everything which includes the Y/Y base.

LIGO'S WAVE SIGNALS EXPLAINED

Our local universe is awash in Big Bang gravitational waves, and other waves associated with active black holes as yet undetected, but potentially detectable with much longer baseline arrays. Throughout the visible universe there are billions of fairly quiet supermassive black holes resting inside most large galaxies such as our own; but some are active "eaters" in distant galaxies. We soon could detect active supermassive black hole phenomena that occurred many millions of light years away relative to our Earth's frame of reference, such as when supermassive black holes feed, or merge with smaller black holes.[14]

BOTH General Relativity AND push/shadow gravity can model what LIGO captured with similar math:

---

[13] https://en.wikipedia.org/wiki/Heisenberg_cut

[14] http://astronomy-links.net/Gravities,BlackHoles,BigBangs.pdf

GR utilizes the voodoo math model of different-dimensional, 2D floppy gravity sheets, interconnected with "graviton" tractor-beam forces.

In contrast, push/shadow gravity explains the final dance and merger of stellar black holes with the dynamic shadowing of multiversal flows of one black object by another, along with resultant laminar wave effects in the so-called quantum foam.

Sub-Planck-dimension "foam" is a randomness quantum idea brought about by insufficient measuring tools, and a minimal understanding of inertial frames. Sufficiently tiny yin/yang units may conceptually appear as random, statistical foam to us. However, this conceit goes back to the seminal confusion of quantum mechanics in the Copenhagen model[15] of Heisenberg and Bohr, where a photon-measuring instrument interferes with dynamic objects – and so we bless our crude instruments, and condemn the too-small-to-measure quanta as random. Wave functions are thereby statistical, and not clearly explained.

Quantum mechanics comes in various forms. Loop quantum gravity envisions a uniform dynamic sea in all directions between those merging small black holes and our LIGO detectors. Push/shadow gravity and yin/yang physics also envision a sea of dynamic particles, with similar wave signals. At the smallest dimensions both QM and yin/yang models envision the unity of matter and energy, the unity of cause and effect. Energy/matter unity is also the core concept of Buddha's *Lotus Sutra,* predating the birth of Jesus by a half-millennium.

Where physical models differ is in the idea of fundamental randomness on all scales. The smallest fundamental particles are not to themselves Schrodinger cats.[16] In human laboratories the idea of randomness, real or otherwise, works when constructing quantum computers with "superposition," and talking about

---

[15] http://plato.stanford.edu/entries/qm-copenhagen/

[16] http://www.iflscience.com/physics/schrödinger's-cat-explained

nearby spooky action at a distance. However, computer nano scales are still vastly larger than the sub-Planck dimensions at which we are fundamentally concerned.[17]

Unlike with GR, push/shadow models do not require voodoo gravity membranes and tractor beams to generate so-called gravitational waves. On the cosmological scale GR seems to have described some of the motion of gravity, but it falls apart as an overall mechanical paradigm. Quantum theory too is not unified on the idea of gravity at all scales. Only modern push/shadow gravity, along with primary and secondary electromagnetic forces, describe all dimensions of gravity and electromagnetism.

BOW WAVES

The idea of *compression bow waves* is interesting. A bow wave could be the wave pushing forward from a large ship. Porpoises and dolphins love to ride such bow waves. A compression bow wave in any fluid medium represents an increase in energy/ matter density that can deflect opposing flows of energy.

Bow waves should likewise be present in so-called gravitational waves. This is how a horizontal pressure pushing out can generate amplitude oscillations up and down. This phenomenon is somewhat similar to the measured dual nature (particles and waves) of laboratory electromagnetism.

An example is coronal mass solar wind, both ionized atomic particles and radiation. Offsetting the solar bow wave pressure is the Earth's own pressurized electromagnetic bow wave that safely deflects much of the solar wind around us as the solar wind continues onward in the same direction. Push/shadow gravity flows exhibit similar deflective behavior in the Allais effect,[18] and in gravitational lenses.

---

[17] http://astronomy-links.net/supersymmetry.htm

[18] http://astronomy-links.net/Allais.html

In contrast, Earth's high-frequency electromagnetic protective shields are not sufficient to deflect the long-wave lengths and low frequencies of arriving intergalactic gravitational bow waves. In addition, due to their diminished amplitude, these distant-source waves don't have the power to threaten us. Because these waves are so long, they can travel for billions of light years without total extinction from quantum drag along the way. The longest waves can even penetrate stars, and they offer potentially new ways to examine distant stellar deep structures.

Sound waves in our atmosphere are limited to 194 decibels because large sounds/amplitudes are line hills that scoop up many air molecules between them. When the air molecules are virtually depleted, the amplitude is maximized.[19] Gravitational waves exhibit similar phenomena. The difference is that sound waves as we know them are very local, and the other waves are on a cosmological scale. Fluid gas atmospheres are quite different from quantum seas. Over time and distance great gravitational waves attenuate to where they don't threaten us. Attenuation is due to accumulated resistance, or drag, within the so-called quantum foam medium to the traveling energy waves.

Concurrent with a symphony of many gravitational waves is the omnipresent and omnidirectional flow of interpenetrating push Y/Y "particles" from the multiverse which virtually don't interact with these waves. In the journey of gravitational waves there is all push, and no shadow, so the net effect on multiversal flows is very minimal. On the other hand, at the point of generation the proximate shadowing effect on multiversal flows from rapidly revolving black holes is great, causing these waves.

(There is a variant of this idea with a long pedigree: the de Broglie-Bohm theory.[20] It is also known as the pilot-wave

---

[19] https://www.quora.com/Is-it-correct-that-if-you-shout-or-make-a-sound-that-is-1-100-dB-it-will-create-a-black-hole-destroying-our-galaxy/answer/Connor-Reed-3

[20] https://en.wikipedia.org/wiki/De_Broglie–Bohm_theory

theory. It is within quantum theory, and is not confined to this discussion.)

CONCLUSION

LIGO's discovery seemingly "confirms" Einstein's 1916 prediction of gravitational waves – but it could be another indication of the true nature of interstellar media (baryonic and dark). These waves are a phenomenon associated at first with push/shadow gravity pulsations around the black holes, and subsequent laminar waves pulsing outward through the comparatively stable quantum sea beyond. We don't need to invent many-dimensional branes and membranes to make sense of it all; nor do typical multiverse quantum theories make the cut.

The beauty of science is that elegant truth eventually emerges. Thousands of cautious experts running along gerbil trails from the 20th century cannot stop this emergence. The 21st century's realignment and unification of astrophysical theory will occur when emergent *comphuman* computer philosophers themselves consider all astrophysical possibilities and probabilities.[21]

This forthcoming unification of mathematical theory with reality could appear within about twenty plus years, not long after we intentionally start them on the pure path of thinking without emotion about all the logical possibilities and likely probabilities emerging from mid-21st-century theory and data.

Today educated members of our protoplasmic mammal species have started the journey of deep philosophical discovery. We will next give comphuman physicists new algorithms to help them complete the great journey that we humans have partially made toward unification of astrophysical theory.

---

[21] http://astronomy-links.net/HandC.html