

# LIGO at the University of Queensland

Stephen J. Crothers

thenarmis@yahoo.com

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## ABSTRACT

On Tuesday the 6<sup>th</sup> of December 2016, professor David Reitze, the Director of LIGO, delivered a 'keynote' conference lecture to high school science teachers at the University of Queensland. He reiterated claims that the LIGO-Virgo Collaboration detected gravitational waves produced by two merging black holes some 1.3 billion light years from Earth. By and large the school teachers sat passively, thoughtlessly absorbing his claims without criticism. Big bang cosmology is now taught to students as young as twelve in Queensland, as a matter of official curriculum. Yet this cosmology is demonstrably false on many levels. When scientific facts were put to him professor Reitze retreated to 'hand waving'. That LIGO did not detect gravitational waves or black holes is easily proven. The letter herein was sent to professor Reitze, inviting his arguments in defence of LIGO.

Professor David Reitze,  
Director of LIGO,

Dear Sir,

You will recall that I made a number of points directly to you, from the audience, after your lecture on LIGO's alleged detection of black holes and gravitational waves, at the University of Queensland on the 6<sup>th</sup> December 2016. It was very clear to me that you did not understand what I said to you. I must therefore put the arguments in writing.

- (1) The LIGO-Virgo Collaboration asserted in its 'discovery' paper that the speed of propagation of Einstein's gravitational waves is the speed of light, and attributed the theoretical discovery of black holes to Karl Schwarzschild. Both claims are demonstrably false. The speed of propagation of Einstein's gravitational waves is coordinate dependent. This is a mathematical issue pertaining to the derivation of a wave equation, from the linearised form you displayed in one of your slides. The mathematical proof that the speed of propagation is arbitrary, subject to choice of coordinates, is in the Appendix of this paper: Crothers, S.J., A Critical Analysis of LIGO's Recent Detection of Gravitational Waves Caused by Merging Black Holes, *Hadronic Journal*, n.3, Vol. 39, 2016, pp.271-302, <http://vixra.org/pdf/1603.0127v4.pdf>

Karl Schwarzschild did not breathe a word about black holes, and his solution precludes them. As I said to you, this is verified by reading Schwarzschild's paper. By your remarks at your lecture, you are obviously ignorant of Schwarzschild's paper. Here is Schwarzschild's paper: <http://www.sjcrothers.plasmaresources.com/schwarzschild.pdf>

- (2) General Relativity cannot localise its gravitational energy. Consequently all talk of Einstein's gravitational waves is meaningless (see the paper above).
- (3) General Relativity violates the usual conservation of energy and momentum for a closed system and is thereby in conflict with a vast array of experiments (see the above paper).

Einstein's attempt to satisfy the usual conservation laws fails because his pseudotensor produces, by contraction, a first-order intrinsic differential invariant. The pure mathematicians proved in 1900 that first-order intrinsic differential invariants do not exist. And how many experiments are sufficient to invalidate a theory? One will do.

- (4) The mathematical theory of black holes contains a latent violation of the rules of pure mathematics. It requires, for example, that the square of a real number must take on negative values. Equivalently, it requires that the length of a hypotenuse take on negative lengths, in violation of the Theorem of Pythagoras. Consequently the mathematical theory of black holes is false. The proof is in the paper above.
- (5) The two 4 K loads of the Low Frequency Instrument (LFI) on the *Planck* satellite were attached to the shield of the High Frequency Instrument (HFI) by means of metal washers and screws. The shield was cooled to 4 K. Although this attachment ensured that the 4 K loads were at 4 K, the metal connexions produced conduction paths from the loads to the shield. Consequently the 4 K loads did not operate as blackbody emission sources at 4 K. There is no blackbody when conduction is present. Since heat was shunted from the loads into the shield by conduction, the 4 K loads emitted negligible or no photons. The signal from each of the two sky horns of the LFI were subtracted from the two reference horns for the 4 K loads respectively. Since the loads did not operate as blackbody sources, owing to conduction, they effectively presented at 0 K to the reference horns. The *Planck* Team reported better than expected response from the LFI. The only means by which this could have been achieved is that the sky is also at 0 K. This means that there is no monopole signal at L2, and hence, no anisotropies. This also proves that the so-called 'CMB' is not of cosmic origin and therefore that Big Bang cosmology is false.
- (6) The COBE satellite reported a very strong monopole signal from an altitude of ~900km. The COBE shield was incapable of protecting the satellite's detectors from microwave diffraction over the shield, owing to its inadequate design. Water is a good absorber of microwaves, as microwave ovens in the home and submarines at sea prove. A good absorber is also a good emitter, and at the same frequencies. Approximately 70% of the surface of Earth is covered by water. This water is not microwave silent. Microwaves are emitted by water via the hydrogen bond. This emission from the oceans is scattered by the atmosphere to produce isotropy. The scattered microwave emissions diffracted over the COBE shield right into its detectors, no matter which direction COBE pointed its sky horn. COBE reported a monopole signal at 2.725 K. COBE detected the microwave emission from the oceans. The temperature of the oceans is not 3 K. There are two bonds in water: (a) the hydroxyl bond, (b) the hydrogen bond. Energy bound within the hydroxyl bond is not available to microwave emission. Only the much lower energy in the hydrogen bonds is available to microwave emission. The temperature extracted from the scattered hydrogen bond emission spectrum in the atmosphere reports 3 K. This is an example of the fact that Kirchhoff's Law of Thermal Emission is false and that Planck's equation for thermal spectra is not universal. Any temperature extracted from a thermal spectrum that is not from a true blackbody, such as soot, is only an apparent temperature, not the true temperature of the emitter. The walls of an isolated arbitrary cavity at thermal equilibrium always contain energy that is not available to thermal emission, unless the cavity is made from a black material such as carbon. Kirchhoff and Planck however, in their theorising, and contrary to experimental facts known even in their time, incorrectly permitted all the energy of the walls of an arbitrary cavity at thermal equilibrium to be available to thermal emission. In doing so they made all cavities black. Cavities are not always black. The nature of the walls cannot be

ignored, contrary to Kirchhoff and Planck. Physical proof of this fact is at hand. NMR and MRI are thermal processes, facilitated by spin-lattice relaxation. This means that there is energy in the walls of an arbitrary cavity that is not available to thermal emission. If Kirchhoff and Planck were right, then NMR and MRI could not exist. The clinical existence of MRI proves that Kirchhoff and Planck are wrong.

LIGO did not detect black holes or gravitational waves; and it never will. I refer you to the following papers:

Robitaille P.-M., WMAP: A Radiological Analysis, *Progress in Physics*, v.1, pp.3-18, (2007), <http://vixra.org/pdf/1310.0121v1.pdf>

Robitaille P.-M., COBE: A Radiological Analysis, *Progress in Physics*, v.4, pp.17-42, (2009), <http://vixra.org/pdf/1310.0125v1.pdf>

Robitaille P.-M., Crothers S. J. "The Theory of Heat Radiation" Revisited: A Commentary on the Validity of Kirchhoff's Law of Thermal Emission and Max Planck's Claim of Universality, *Progress in Physics*, v. 11, p.120-132, (2015), <http://vixra.org/pdf/1502.0007v2.pdf>

I look forward to receiving your considerations on these issues.

Yours faithfully,  
Stephen J. Crothers.  
11<sup>th</sup> December 2016

### **Post Script**

During his lecture, professor Reitze informed his audience that Newton developed his theory of gravity in 1643. Newton was born in 1642. Although he is often considered the greatest scientific genius of all, it is nonetheless very doubtful that he developed his theory of gravity at the tender age of one.