

A GIFT OF GOD AND ISAAC NEWTON

CHAN RASJID KAH CHEW

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ABSTRACT. Isaac Newton was a genius. His greatest achievement was undoubtedly his discovery of the laws of motion and the universal law of gravitation. They are as if '*gifts of God*' concerning the laws of the natural world, laws that are universal and valid for all times. Any attempt to provide alternatives to such laws could only end in failure.

1. INTRODUCTION

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When a person receives a gift of God, he would have no doubt that it is from God. If the gift is a message, he would have no doubt about its content. If it is a revelation of knowledge, then he would not have the slightest doubt over its correctness as it is from God, the All Knowing. He would have absolute certainty that the understanding he received is of a universal nature, that it would be universal truth about nature that would be true for all times.

People receive God's gift in different manner. We are all born different with different abilities and talents of different degrees. Some may be born as a genius and some plain and ordinary. Not only do the genius make great discoveries, the plain and ordinary too may at times be given the knowledge that unravel the great mysterious of nature. God works in His mysterious way according to His Will.

It is well known that Isaac Newton was a genius. It is said he only started learning higher mathematics at the age of twenty, but by the age of twenty six he was already established as one of the top mathematician of his time. Newton's greatest achievement is undoubtedly his publication: 'Mathematical Principles Of Natural Philosophy' published in 1687 - popularly referred to as '*Principia*'. There is almost universal agreement that it is one of the greatest scientific writings of all times. It is what brought physics and mechanics from a qualitative level to one which is a quantitative science where definite mathematics and numbers could accompany descriptions. This is facilitated through the discovery of calculus - the mathematics of change.

Key words and phrases. Isaac Newton, Principia, Albert Einstein, relativity, special relativity, general relativity, mass, energy, $e=mc^2$, $e=mc^2$.

2. THE PRINCIPIA - A GIFT OF GOD

Isaac Newton received the '*Principia*' as a gift of God, but it was not a free gift. Anyone who has browse through the translation of '*Principia*' could easily see that Newton was a genius with a very wide knowledge of mathematics. When he completed the '*Principia*', he was about age forty three. So he put in many years of study - human effort - before he finalized the three laws of motion and his universal law of gravitation. So a gift of God does not necessarily mean as simple as someone sitting in the open on a bright sunny day and just letting the sunlight falling on his body. In Newton's case, there probably was the first rays of sunlight lighting up his understanding, but Newton had to let his knowledge seep throughout his being by steps - taking years - before he could have a full understanding of the gift of God. God give His gift in His manner and man cannot argue.

A gift of God is a revelation of universal truth. The classical mechanics of Newton is universal truth that cannot be refuted. It is as valid today three hundred years after Newton as when it was first discovered. It would still be valid for the next thousand years, or ten thousand years if human civilization could survive that many years. Because Newtonian mechanics was a gift of God, Newton had not the slightest doubt about what he discovered. It has been shown that Newton was not the first to propose the inverse square law of gravitation (which he acknowledged), but it was Newton who corroborated the proposition with mathematical calculations which established it as an exact law of nature. No one at the time could be sure that gravitation was an exact inverse square law.

Newtonian mechanics is the mechanics of the natural world '*in the image of God*' - it cannot be challenged. The present physics community adopted a new relativistic mechanics based on Einstein's special relativity and claims that their new mechanics has replaced Newton's mechanics as the '*more correct*' mechanics. It can never be. The claim is that the true mechanics of the natural world is the new relativistic mechanics and that Newton's mechanics is only approximately true at slow speeds such as with the motion of planets around the sun. It is claimed that for motion with speed near that of light as found within the the Large Hadron Collider, LHC, Newton's mechanics fails. But God did not reveal a universal mechanics that works in the space of the solar system and which fails within the space of the Large Hadron Collider. Something must have gone wrong - God could not have made a mistake! There must be many things questionable with this man-made 'super' collider or the men working this super collider have got their mechanics all messed-up.

3. EINSTEIN'S SPECIAL RELATIVISTIC MECHANICS

What is wrong with particle physics is that it is based on relativistic mechanics and what is wrong with relativistic mechanics is with the second postulate of special relativity - that the speed of light is a universal constant [1]. The concept of speed in Newtonian mechanics is founded on the definitions of length in Euclidean space and the definition of universal time. Based on the foundational definitions on which Newtonian mechanics has been developed, the Galilean Transformation may be derived and shown to be the correct coordinate transformation between different inertial reference frames for a general motion. The Galilean Transformation has the implication that all motion is relative - there is not such a thing as an absolute motion. If a body has a velocity of v in a certain reference frame and the origin of this frame has a speed of u , then the total velocity is $v + u$ - the speed of a body is always a relative speed relative to the observer.

Einstein in his 1905 paper proposed his special theory of relativity based on his light postulate:

The speed of light is a universal constant independent of the motion of the observer.

But just because Einstein used the term 'speed' does not mean it has anything to do with speed as a concept in Newtonian mechanics. We may call an elephant a swan and this new 'swan' will still never ever fly. The concept of speed in Newtonian mechanics is not dependent on the type of motion or the thing of which motion we measure the speed. So the speed of light in Newtonian mechanics, as a defined concept, must always be relative or dependent on the motion of the observer - speed is always non-invariant.

At a stroke of the pen, Einstein created his new mechanics in direct contradiction of the defined concepts of length and time in Newtonian mechanics. So this new 1905 space-time theory of Einstein has nothing whatsoever to do with Newtonian mechanics nor with the familiar physical world for which Newtonian mechanics was developed. Nothing in the theory of special relativity nor any experiments interpreted according to the theory of special relativity has any relevance to the reality of the Newtonian world. Nature may only accommodate only one mechanics of the physical world, not two. It is trivial to show that special relativity is invalid for the Newtonian physical world of the common man where *what goes up must come down*; the common man does not need to consider any alternative reality where a stone thrown upwards may never return.

4. THE TWINS' PARADOX

The coordinate transformation that special relativity requires is the Lorentz Transformation and not the Galilean transformation. The

Lorentz transformation gives rise to the phenomena of length contraction and time dilation. We will examine just time dilation as it gives rise to the much discussed twins paradox. Most introductory textbooks on special relativity would usually have a discussion of the twins paradox and how it is resolved according to special relativity. It is all about the notion: *time runs slow when a body is moving*. Time slows so much that it almost slow to a standstill if we move close to the speed of light. It literally mean that if we move close to light speed relative to another person, then our time (reflected by the watch we are wearing) would seem to almost stop as compared to the time (and clock) of the other person. The usual scenario is a pair of twins aged 20; one remained on earth and the other went on a space odyssey in a spacecraft near the speed of light. The space twin looked at his watch and turned back home and arrived back home after 2 years, aged 22. When he met his twin earth-brother, he was shocked to find that his twin brother was already an old man of 70 with white hair. How could this be? The explanation given is time dilation. Time slows for the moving space-twin and his time slowed almost to a standstill compared to the time on earth. A passage of 50 years on earth was just 2 years for the space-twin who was moving. This explains the seeming counter-intuitive and vastly different aging of the twins. Special relativity considers time dilation to be a real physical phenomenon.

If a student were to ask his professor why motion cannot be viewed from the perspective of the space-twin, that it is the earth-twin that is moving away, the professor would offer the textbook reply that the space-twin needs to accelerate to leave the gravity of the earth, so it must be taken that it is the space-twin that is moving.

In my younger days, I used to read books about Taoist philosophy and the Ying-yang principle. In the Tao Te Ching, there must be verses about how we know the light only when we know the dark and we can know darkness only when we know the light; we know movement only when we know stillness and we know stillness only when we know motion. The Yin-yang relativity is a fundamental principle of nature. If I were the professor of physics, I would have to set myself on an absolute dishonest mode and lie through my teeth to tell the student that we may only consider the space-twin to be moving. Within an hour, the space-twin moving near the speed of light would be so far away from the solar system that the solar system would only be just a point particle. So, to the space-twin the solar system would be just a point particle moving away close to the speed of light; it would mean it would be the earth time that would be slowing to a near standstill. If the space-twin got lost in space and only found his way home to earth after a 50 year wandering, he would be aged 70 on meeting his earth twin and the earth-twin would still be a young man of 22. Time dilation only imply a logical inconsistency of special

relativity in the reality of the Newtonian world. This is not surprising as any phenomenon of special relativity applies only in the alternative reality of special relativity, not in the reality of the common Newtonian world.

5. EINSTEIN DID NOT UNDERSTAND NEWTON'S THREE LAWS OF MOTION

When special relativity was examined in the early days, serious difficulties were discovered. It was found that with the Lorentz Transformation, momentum and energy would not be conserved between the two inertial reference frames under coordinate transformation. There was no question of creating a new mechanics which does not preserve energy and momentum conservation as they have been accepted for centuries as fundamental laws of nature. Any deviation from it was unthinkable. As it would be unthinkable to violate the conservation laws, the new relativists who wanted a new mechanics did the alternative. They revised Newton's second law of motion so that their new relativistic mechanics creation would also preserve the laws of conservation of momentum as well as conservation of energy. The way it was done was to define a new relativistic momentum; instead of Newton's mv they defined momentum as $mv/\sqrt{1-v^2/c^2}$. With this new momentum, they assumed Newton's second law of motion may be interpreted as a law of force, that the rate of change of the new momentum would define the new force in their new mechanics:

$$force = \frac{d}{dt} \left(\frac{mv}{\sqrt{1-v^2/c^2}} \right) \quad (1)$$

Unfortunate for the relativists, they did not understand Newton's *Principia* well enough. It was customary to refer to Newton's mechanics as '*laws of motion*'. In reality, they are not laws as with testable laws! They are the three *axioms* that Newton discovered which could be used to logically explain the motion of bodies. Together with the law of universal gravitation, he found that his mechanics based on the three axioms worked. His mechanics could be used to compute the paths of motion of the celestial planets and to confirm the earlier works of Kepler.

Newton did not propose any general law that governs how the force on a body relates to its motion.

But Newton did provide the method to compute the force acting on a body when its motion is known. With our current notations, his method was:

$$force = \frac{d}{dt}(mv) = m \frac{dv}{dt} = ma. \quad (2)$$

This equation(2) is the modern mathematical representation of the second axiom in Newton's mechanics. Its is not a law of force, but a definition of force:

The force on a body of mass m with an acceleration a is defined to be ma

In fact, Newton's definition of force as represented by equation(2) is how the unit of force, the 'newton', symbol N , is defined in our current SI system of units. Newton never ever said we could define momentum (motion, in Newton's Principia) in any arbitrary manner and that defining force as the rate of change of momentum would create a new and valid mechanics. We may create a 'new' mechanics, but it is not certain it would be a valid mechanics with which we could use to calculate the motion of bodies in our natural world.

The mainstream physics has now fully incorporated relativistic mechanics into our modern physics and even created new branches of physics such as the Standard Model of particle physics. It is now claimed that the new mechanics of special relativity has replaced Newtonian mechanics as the correct mechanics of our natural physical world. They showed that for very small speed, relativistic mechanics would be equivalent to Newtonian mechanics; so relativistic mechanics would not contradict any predictions of Newtonian mechanics. Further, the mainstream claims that for motion with speed that are not negligible compared to that of the speed of light, only relativistic mechanics apply. Is it true?

6. RELATIVISTIC ENERGY MOMENTUM RELATION FICTITIOUS

In the scientific method, a theory would be acceptable only if it passes two basic tests:

- (1) logical consistency - the application of the theory must not lead to any logical inconsistency.
- (2) empirical verification - the predictions of the theory could be empirically verified.

How does special relativity fare with these two very basic tests. We have shown earlier that the application of special relativity's time dilation leads to a clear logical inconsistency in the twins paradox. That alone is clearly sufficient to categorically dismiss special relativity. When a theory cannot pass the logical consistency test, there is never a need to consider any empirical verification of the theory. Somehow, mainstream physics still insists special relativity is the most rigorously tested and verified theory of physics.

Besides the logical inconsistency of time dilation and length contraction, there is the other blatant and bizarre failure of relativistic mechanics. In order that a theory of mechanics may be used in practical calculations, there must be physical units defined for the various

concepts in the mechanics. In the SI system of units, equation (2) is used to define the unit of force, the 'newton'. In relativistic mechanics the concept of force is defined with equation (1). What is the physical unit of force used in relativistic mechanics? It is obviously not the same 'newton' of classical mechanics as equation (1) and equation (2) are different. If not the SI unit of 'newton', then what is the physical unit of force that mainstream physics is using in the mechanics of special relativity. *It is the same 'newton' in the SI system of units!* One has to grow another brain in order to understand how the 'newton' could also be used as the unit of force in relativistic mechanics. Force in relativistic mechanics is fictitious. The equation (1) which defines the concept of force in relativistic mechanics cannot be used in any way to define any real physical unit of force in any system of units.

The truth of the matter is simple as long as we realize that special relativity has nothing at all to do with our physical world. The very foundation of special relativity - the second postulate on the constancy of the speed of light - contradicts the very fundamental definitions of natural mechanics as developed by Isaac Newton in his *Principia*. So special relativity cannot be incorporated into any physics without rendering such physics invalid. Most of the so called 'modern physics' of today are developed with relativistic mechanics including high energy physics that have energy based on the relativistic equation $E = mc^2$. Such physics would all be fictitious. When force is fictitious, so also would energy be fictitious as energy in mechanics is derived using the work-energy theorem starting with the definition of force. So this renders $E = mc^2$, the so called '*most important equation in physics*', invalid. So the result is that the energy-momentum relation of high energy physics is invalid:

The relativistic energy-momentum relation $E^2 = (pc)^2 + (m_0c^2)^2$ is invalid.

7. EINSTEIN'S ATTEMPT TO BE ONE STEP AHEAD OF NEWTON

There is a famous statement of Isaac Newton: *I feign no hypotheses*. It was a statement he made regarding the mathematical principles of his laws of motion and the law of gravitation. Specifically, he was referring to his inverse square law of gravity. Newton only could confirm the way gravity acts on material bodies, but he made no hypothesis about the cause of gravity. It was also true with regard to his concept of mass, that a material body has an invariant mass that could be measured through the gravitational attraction of the earth on the body. All material bodies have mass, but Newton did not offer any cause why matter has mass. *Until today, mass and gravity remain the two greatest mysteries of physics.*

Newton was not able to offer any explanation of gravity, but Albert Einstein did with his general relativity of 1915. It is claimed that

general relativity is not only consistent with Newtonian gravity, it could also explain why there is gravity:

Einstein's general relativity theory explains gravity to be due to the curvature of space around a body with mass.

So Einstein went one step ahead of Newton and had a theory which could even explain the 'why' of gravity. As the author has no knowledge of general relativity, he cannot comment on the theory proper. But the author can state with absolute certainty that general relativity, too, like special relativity, is a fictitious theory that describe nothing real about our physical world:

Einstein's general relativity is founded on special relativity and, therefore, could not be a valid theory of gravitation.

Einstein's wish to be one step ahead of Newton was a failure.

8. AN ANSWER TO THE MYSTERY OF MASS AND GRAVITY

Now that $E = mc^2$ is dismissed, mass again become the invariant and 'indestructible' mass of Newton's *Principia*. Chemists since the time of John Dalton (1766-1844) found mass to be conserved in chemical reactions - *atoms cannot be subdivided, created or destroyed*. We now know atoms may be subdivided, but mass cannot be created or destroyed. The law of conservation of mass, current before special relativity, has to be revived without the accretion of energy necessitated by special relativity; there is no more mass-energy equivalence.

The free neutrons may be emitted when alpha particles from radioactive decay fall on certain elements. The free neutron is unstable and decays to a proton and an electron. With mass conservation, the mass of the neutron would be the same as the mass of the hydrogen atom ^1H . Its mass would be 1 u, a whole number; it is not 1.00866491588 u as given in the American National Institute Of Standards And Technology, NIST table of atomic masses. Currently, the physics community makes use of the atomic masses found in the NIST table measured using the Penning trap - supposedly a most prestigious of modern scientific instrument. As the author has shown in his paper [3], there is no need to measure the atomic mass of a nuclide using the Penning trap. The atomic mass of a nuclide is simply its mass number in atomic mass unit - a whole number. Isaac Newton '*feign no hypotheses*' when it comes to the concept of mass. We now can come to a simple explanation for mass that eluded Newton. If we have a 1 kilogram copper bar and 1 kilogram of tomatoes, The number of protons and electrons in the copper bar is the same as the number of protons and electrons in the 1 kilogram of tomatoes.

The mass of a neutral body is proportional to the number of protons and electrons in the body.

The Standard Model of particle physics treats the neutron to be a fundamental particle; together with the protons, they make up the nucleus of atoms. As the Standard Model has been discredited due to its association with special relativity, the notion that the neutron is a fundamental particle too may be dismissed. The free neutron may be treated as a special state of the hydrogen atom ^1H . Within the nucleus of atoms, the neutron may be treated as just an additional proton with a nuclear electron. With this new model of the nucleus as having only protons and electrons, there is no more need of the fanciful introductions of further nuclear forces - the electro-weak and strong forces - to explain the stability of atoms. The author's paper [4] introduces a Simple Unified Theory (SUT) which has the Coulomb electrical force to be the one and only universal force of the physical world, not the four forces of current physics. The gravitational force too originates from the Coulomb's law and its source is also electrical. The trophy waiting for the discovery of a '*Grand Unified Theory, GUT*' might have fallen and shattered, and *all the King's men may not put the trophy together again*.

We have now unraveled the age old mystery of how mass come about. As for gravity, we have dismissed the curvature of space to be why there is gravity. There is no getting around trying to explain gravity with '*feign no hypotheses*'. In 1830, O.F.Mossotti proposed the hypothesis that gravitational attraction is due to the slight excess of Coulomb attraction over repulsion. This hypothesis was seriously considered by Michael Faraday and Wilhelm Weber, the most famous early pioneers of electromagnetism. The author has shown in his paper [4] that the inverse square law of universal gravitation could clearly be attributed to Coulomb's law adopting the Mossotti hypothesis. With this, the answers to the two greatest mysteries of physics - mass and gravity - have been settled.

9. CONCLUSION

We have shown how incorporating Einstein's special relativity into physics in the 20th century has cost the physics community a full century of lost time. Much resources have been wasted on pursuits of experiments that are aimed only to justify Einstein's relativity theory. The sooner the world come back to traditional physics founded on empirical observations, the sooner we would be able to make real progress in physics. Only through real breakthroughs in physics could the world hope to find the solutions to the many pressing problems facing the present world, especially in our increasing need for energy, water resources and food.

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Email address: chanrasjid@gmail.com

URL: <http://www.emc2fails.com>

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