

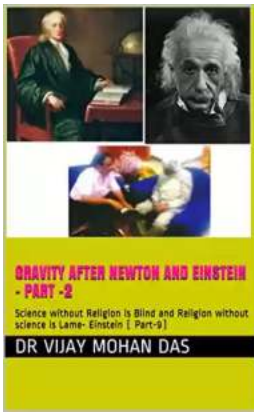
# Gravity After Newton And Einstein: Exploring the Ultimate Force That Shaped Our Universe

Gravity is a force that has always fascinated mankind. From the early days of human civilization to the present day, scientists and thinkers have pondered over the mysteries of gravity and its effects on the physical world. While Sir Isaac Newton laid the foundation for understanding gravity with his laws of motion, it was Albert Einstein who revolutionized our understanding of this force with his theory of general relativity. In this article, we will explore the evolution of our understanding of gravity after Newton and Einstein, delving into the advancements and discoveries made by subsequent generations of scientists.

## The Legacy of Newton: Unveiling the Universal Law of Gravitation

In the 17th century, Sir Isaac Newton revolutionized the world of science with his laws of motion and his theory of universal gravitation. Newton's laws provided a framework for understanding the motion of objects on Earth and in space, laying the groundwork for the development of classical mechanics. His law of universal gravitation, which stated that every particle of matter attracts every other particle with a force that is directly proportional to the product of their masses and inversely proportional to the square of the distance between them, provided a mathematical explanation for the force of gravity.

Newton's laws of motion and gravitation held sway for nearly two centuries, enabling scientists to accurately predict the motion of celestial objects and understand the mechanics of objects on Earth. However, as technology advanced and new discoveries were made, it became apparent that Newton's laws were not the full story.



## Gravity After Newton and Einstein - part -2: Science without Religion is Blind and Religion without science is Lame- Einstein ( Part-9)

by Brian McCormick(Kindle Edition)

★★★★☆ 4.6 out of 5

Language	: English
File size	: 2545 KB
Text-to-Speech	: Enabled
Enhanced typesetting	: Enabled
Word Wise	: Enabled
Print length	: 55 pages
Lending	: Enabled
Screen Reader	: Supported
Hardcover	: 430 pages
Item Weight	: 1.43 pounds
Dimensions	: 6.14 x 0.94 x 9.21 inches
X-Ray for textbooks	: Enabled



### **Einstein's Paradigm Shift: General Relativity and the Warping of Spacetime**

It was in the early 20th century that Albert Einstein revolutionized our understanding of gravity with his theory of general relativity. Einstein's theory went beyond Newton's laws and provided a new conceptual framework for understanding gravity as the curvature of spacetime caused by the presence of mass and energy.

Einstein proposed that massive objects, such as planets and stars, create a curvature in the fabric of spacetime, causing other objects to move along curved paths. This curvature is what we perceive as the force of gravity. General relativity

not only explained the motion of objects in space but also predicted phenomena like the bending of light around massive objects and the existence of black holes.

Einstein's theory of general relativity was confirmed through numerous experiments and observations, solidifying its place as the most accurate description of gravity to date. However, scientists have continued to push the boundaries of our understanding of gravity, seeking to reconcile it with other fundamental forces and phenomena.

## **Gravity and the Quantum World: Seeking a Unified Theory**

One of the biggest challenges in modern physics is the reconciliation of gravity with quantum mechanics, our current framework for understanding the behavior of particles at the smallest scales. While both general relativity and quantum mechanics have been immensely successful in their respective domains, they seem to be incompatible with each other.

Scientists have been on a quest to develop a unified theory of gravity and quantum mechanics, often referred to as quantum gravity. This theory would provide a complete and consistent description of the fundamental forces of nature, including gravity, at all scales. Several theories, such as string theory and loop quantum gravity, have emerged as candidates for a theory of quantum gravity, but none have been conclusively proven.

## **Exploring Gravity Beyond Our Solar System: Dark Matter and the Expansion of the Universe**

Gravity extends far beyond our local neighborhood in the universe. Scientists have observed and explored the effects of gravity on a cosmic scale, leading to groundbreaking discoveries about the structure and evolution of the cosmos.

One such discovery is the existence of dark matter, a mysterious substance that emits no light or energy but exerts a gravitational pull on visible matter. Dark matter is thought to make up a significant portion of the matter in the universe, playing a crucial role in the formation and distribution of galaxies. Understanding the nature of dark matter and its relationship with gravity remains one of the biggest puzzles in modern astrophysics.

Another profound discovery related to gravity is the expansion of the universe. Observations made by Edwin Hubble in the 1920s revealed that galaxies were moving away from each other, indicating that the universe is expanding. This expansion is driven by a repulsive force known as dark energy, which counteracts the gravitational attraction between galaxies. The interplay between gravity and dark energy is still not fully understood, and it continues to be an area of active research.

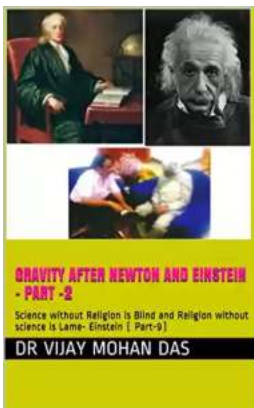
## **The Future of Gravity: Gravitational Waves and Beyond**

In recent years, the field of gravitational-wave astronomy has opened up a new window for studying the universe's most extreme phenomena. Gravitational waves are ripples in the fabric of spacetime caused by the acceleration of massive objects, such as black holes or neutron stars. Detection of these waves provides a direct confirmation of Einstein's theory of general relativity and offers a unique tool for exploring the universe.

The first direct detection of gravitational waves occurred in 2015 by the Laser Interferometer Gravitational-Wave Observatory (LIGO), marking a new era in observational astronomy. Since then, several other gravitational-wave events have been detected, shedding light on the properties of black holes, neutron stars, and the nature of gravity itself.

As technology advances and our understanding of gravity deepens, scientists are eagerly exploring new frontiers in the study of gravity. From further observations of gravitational waves to the search for exotic forms of matter and energy, the future of gravity research holds exciting possibilities that will undoubtedly shape our understanding of the universe.

Gravity has come a long way since Sir Isaac Newton first formulated his laws of motion and gravitation. Albert Einstein's theory of general relativity further expanded our understanding of this force and opened up new avenues for exploration. From the search for a unified theory of quantum gravity to the study of dark matter, dark energy, and the detection of gravitational waves, scientists continue to push the boundaries of our knowledge. As we delve deeper into the mysteries of gravity, we uncover more about the fundamental nature of the universe and our place within it.



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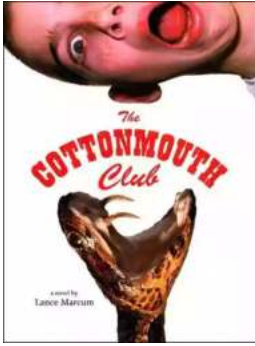
Apart from attraction property to center of mass (  $M_1$  ) which is due to Mind when (  $M_2$  ) is near (  $M_1$  ), it also gives energy ( Primary bosons and secondary boson ) to the interacting unit (  $M_2$  ) for work done . Hence it is not simple graviton ( primary fermions ) rather it is energized gravitons ( secondary fermions ) as it gives energy to interacting system (  $M_2$  ). This energy is stored as dark energy in energized gravitons or functional energy ( F.E. ) of the universe. Hence all bosons are also secondary bosons and they are made up of primary bosons. Now nature is increasing in size also . As B.B.Bs have mass , by virtue of this property of B.B.Bs, all secondary fermions ( energized graviton ) and secondary bosons ( vector bosons and Higg's ) have mass , including photons, gluons. During decay of quarks or say protons they are liberated from the source (  $M_1$  ) as string of energized gravitons and their first function is to hold electron (  $M_2$  ) in orbit. Having left the atom these energized gravitons become low energy energized gravitons . Their second target is Photon (  $M_2$  ) of massive body to give gravitational red shift. The third Target is bending of starlight or photon (  $M_2$  ) . The fourth target is planetary motion in orbit or to hold planets in orbit (  $M_2$  ) . The fifth target is inter orbital shift of comet (  $M_2$  ) and asteroid (  $M_2$  ) . If energized gravitons belong to Cold dark matter layer (  $M_1$  ) , the (  $M_2$  ) would be receding galaxies making Hubble law in the universe . If energized gravitons belong to center of mass of galaxy (  $M_1$  ) , then the tangential motion of stars of galaxy is (  $M_2$  ) seen . Similarly on earth energized gravitons of earth (  $M_1$  ) causes , weight of object (  $M_2$  ), fall under gravity and acceleration  $g$  during fall of object (  $M_2$  ) , and interaction with increase in velocity ( increased energy inertial mass (  $M_2$  ) of electron in CRO . Charged property of quarks and charged and magnetic property of electron are maintained by Functional energy of energized gravitons or due to their decay . Thus indirectly charge and magnetic property of proton and electron or nucleus

are maintained by their energized gravitons which form them. Energy liberated in nuclear fission and fusion also comes from this energy pool of universe ( F.E. of energized gravitons ). Generation of electrical energy of Damp ( turbines) comes from same energy pool. Magnetic property of planets and suns are also being formed by energized gravitons . . Our cellular respiration is maintained by energized gravitons of sun .Hence they are the tiniest battery of the universe and without their existence , structure and function of particles , atoms , universe and life is impossible . So calling them hypothetical particles and making them weakest force of universe and making their existence only during early universe of expansion (quantum gravity era ) or making gravity is property of space time are all spurious ideas. There are many phenomena which are being controlled by energized gravitons like phenomenon of binary system, merging galaxies, slowing of atomic clock in high gravitational field , inter-orbital shift of comet , electrons , asteroids and pulsar phenomenon . Fate of stars is also controlled by energized gravitons as energy supplied for work done ( reverse H.R. diagram activity ) during death of the star ( Red Giant) is given by energized gravitons of neutron star.



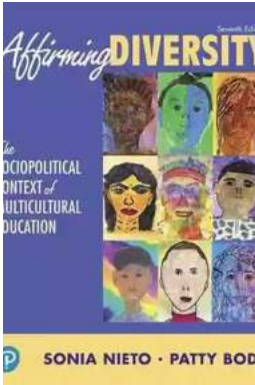
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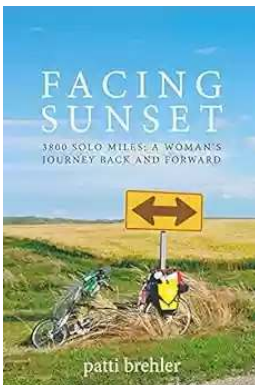
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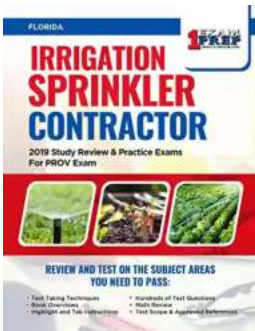
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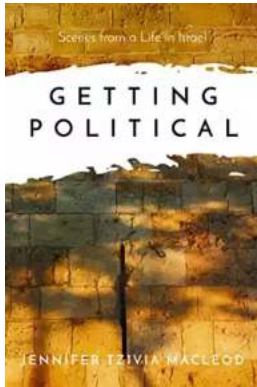
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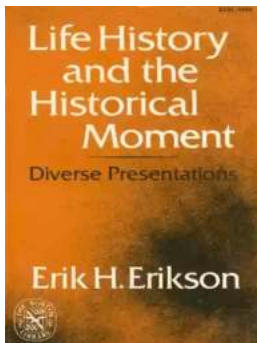
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