

Mathematical Link Between Gravity and Electromagnetism Through Dias' Equation

Adalberto da Costa Dias*

Darcy Ribeiro Northern Fluminense State University, Rio de Janeiro, Brazil

Abstract

"The work ennobles the man, who ends up dying an early manner. In obedience to the mass and energy conservation law, your soul as dark energy and his body as cosmic dust are direct to black holes. Then, the entity known as man disappears. As a testament for future generations, the work that ennobled him remains latent". The purpose of this Short Communication is to make the mathematical link between gravity and electromagnetism through Dias' Equation.

Keywords: Universal Evolution; Dias' Equation; Quantum Mechanics; Unified Field's Theory; Electro-Gravity-Magnetism

Introduction

Hoyle [1] is quoted, in the specialized literature, as being the creator of the term Big Bang. However, it was Lemaitre [2] how clarified the Big Bang theory for the origin of the universe, which he called the hypothesis of the primordial atom.

It was Einstein [3] who actually provided the mathematical basis for the understanding the origin of the expanding universe. The Einstein's Equation (4) [3], considered as one of the mathematical foundations of the mass and energy conservation law (4) also explains the existence of the universe in contraction, which predates the Big Bang itself.

Dias [4-6] has tried shown that the universe has already passed the expansion phase after Big Bang, ending with the formation of stars. According to Dias [4-6], the universe is in advanced phase of contraction, having the black hole, called here the Big Hole, located in the gravitational center of the universe itself. It is the Big Hole, which maintains unified the universe in contraction forming a constellation of galaxies, always in evolution, through the Big Crunch process [7], to a point of singularity [7], where a new Big Bang is re-started cyclically, over and over and over again, indefinitely.

Sir Albert Einstein spent half of his existence as a physicist – mathematician – researcher, investigating about the unified field's theory and could not establish during his life the connection between electromagnetism and its Equation (1916); mathematical basis of the general relativity theory [8]. According to Dias [4-6], gravity is the physical phenomenon, which is not related to hot compression and does not push when deforms space – time – mass, because, gravity is coupled to the masses attraction force vector, of contractive, implosive and cold in nature that pulls by gravitation the attracted masses, together with the space and the time, at the velocity squared, towards the material point localized in the center of attractive mass of reference, at the fifth dimension.

Universal Evolution

Interpreting current questions related to universal evolution

1. First question has to do with the supposed accelerated expansion of the universe brought about by the intervention of dark energy.

Interpretation: Expansion cycle decelerated of the universe ended when the propagation of white energy, explosive, expansive and hot after Big Bang stopped in the position occupied by the stars in the firmament. From there, the stars was grouped in the form of galaxies by the gravitational attraction of black holes, initiating the contraction cycle of the universe, which is accelerated by the intervention of implosive, contractive and cold dark energy [4].

2. Second question has to do with the collision among many galaxies occurring supposedly near Big Bang in the expanding universe.

Interpretation: Only once the expansive cycle to be complete [4], it is possible the simultaneous collision among many galaxies near the Big Hole in the universe in contraction.

3. Third question has to do with the gravitation of galaxy with orbital velocity above speed of light c.

Interpretation: Gravity acceleration manifests itself with velocities in the second power [4]. Once the galaxies approach the Big Hole in the universe in contraction with very large and ever-increasing squared velocities, it is possible to exceed the speed of light by intervention of gravity acceleration.

Dias' Equation

Dias' Equation (1) is the mathematical representation of a new version of the universal gravitation law, related to the figure of the universe in contraction of a hyperboloid of revolution at the fifth dimension [4] (Figure: 1).

$$\bar{g} = \frac{\bar{F}_a}{m_{rf}} = v^2 \left(\frac{\hat{s}}{s} + \frac{\hat{t}}{t} + \frac{\hat{m}}{m} \right) \quad (1)$$

*Corresponding author: Adalberto da Costa Dias, Darcy Ribeiro Northern Fluminense State University, Rio de Janeiro, Brazil, Tel: (+55) 22-998101038; E-mail: adalbertocostadias@outlook.com

Received August 22, 2018; Accepted October 08, 2018; Published October 12, 2018

Citation: Dias ADC (2018) Mathematical Link Between Gravity and Electromagnetism Through Dias' Equation. J Astrophys Aerospace Technol 6: 161. doi:10.4172/2329-6542.1000161

Copyright: © 2018 Dias ADC. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

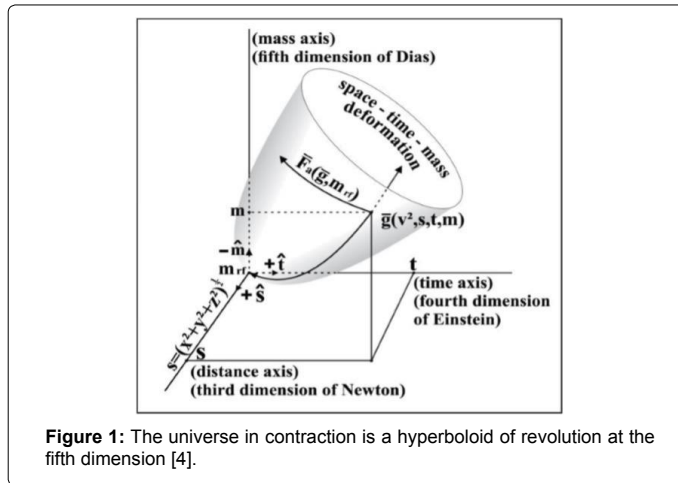


Figure 1: The universe in contraction is a hyperboloid of revolution at the fifth dimension [4].

Where:

\bar{g} = gravitational field;

\bar{F}_a = force vector of gravitational attraction;

m_{rf} = material point localized in the center of attractive mass of reference;

v = orbital velocity of moving bodies;

$+\hat{s}, +\hat{t}, -\hat{m}$ = unit vectors in the directions of the straight axis s, t, m , respectively;

$s = \sqrt{x^2 + y^2 + z^2}^{\frac{1}{2}}$ the smallest straight distances representing space implosively accelerated;

x, y, z = space coordinate axis representing the Newton's third dimension;

t = time regressively accelerated representing the Einstein's fourth dimension

m = attracted mass cumulatively accelerated representing the Dias' fifth dimension.

Quantum Mechanics

In the light photons limit ($v \rightarrow c, m \rightarrow m_p$), Dias' Equation (2) represents, for unified field's theory, the mathematical link of quantum mechanics between gravity and electromagnetism.

$$\mathfrak{I} = \left(\frac{\bar{F}_a}{\bar{h}} \right) = m_{rf} c^2 \quad (2)$$

Where:

$$\bar{g} = \frac{\bar{F}_a}{m_{rf}} = \text{A Newton's Equation [9] (Newtonian mechanics)} \quad (3)$$

$$\mathfrak{I} = m_{rf} c^2 \text{ An Einstein's Equation [3] (Mass and Energy Conservation Law)} \quad (4)$$

$$\bar{I}_p = \left(\frac{\hat{s}}{s} + \frac{\hat{t}}{t} + \frac{\hat{m}}{m_p} \right) \text{ Dias' Contribution} \quad (5)$$

$$\lim_{d \rightarrow +\infty} d = \lim_{vol \rightarrow 0} \frac{m_{rf}}{vol} \text{ Dias' Contribution [4]} \quad (6)$$

Unified Field's Theory

1. In the universe in contraction, the dark and cold energy \mathfrak{I} is related with the gravity of black holes. This is the reason why dark energy cannot be mass-transformed in the laboratory, because it is solely a cosmic phenomenon [4]. The dark and cold energy \mathfrak{I} in Dias' Equation (2) represents the energy stored in an electromagnetic field, according to Reitz & Milford [10] (p. 297):

$$\mathfrak{I} = \int_V \frac{1}{2} (\bar{E} \cdot \bar{D} + \bar{H} \cdot \bar{B}) dV \quad (7)$$

\mathfrak{I} = energy stored in an electromagnetic field

\bar{E} = electric field;

\bar{D} = electric field displacement

\bar{H} = magnetic field intensity

\bar{B} = magnetic field induction.

2. The force of gravitational attraction \bar{F}_a in Dias Equation (2) is related with gravity of black holes in the universe in contraction \bar{F}_a is contractive, implosive, and cold in nature [4].

3. Vector \bar{I}_p in Dias' Equation (2) represents the way back travelled in the space implosive and in the time regressively by the attracted masses of the light particles, in its trajectory that goes from stars to black holes, where the light photons m_p (5) accumulate as dark matter in the universe in contraction (Figure: 1).

4. Attractive mass m_{rf} that appears in Dias Equation (2), in Newton's Equation (3) [9], in Einstein's Equation (4) [3] and in Equation (6) [4] represents the material point in gravitational center of black holes, inclusive in gravitational center of the Big Hole – the black hole located in the gravitational center of the universe in contraction. Density d goes to infinity and volume vol goes to zero in equation (6) [4], regardless of the mass m_{rf} (dark matter), which is safeguarded by the mass and energy conservation law (4).

5. Dias' Equation (2) represents four Equations. The first is due to Newton (3) [9], the second is due to Einstein (4) [3], the third and the fourth are contributions of Dias himself (5) (6), which make the connections with the two other Equations (3) (4).

Electro - Gravity - Magnetism

1. According to Reitz & Milford [10] (p.236):

$$\bar{F} = \bar{\nabla} \mathfrak{I} \quad (8)$$

$\bar{\nabla}$ = differential mathematical operator, named gradient.

2. According to Dias [4]:

$$\bar{\nabla} = +\hat{s} \frac{\partial}{\partial s} + \hat{t} \frac{\partial}{\partial t} - \hat{m} \frac{\partial}{\partial m} \text{ (The gradient points to infinity in direction and sense, Figure: 1)} \quad (9)$$

$$v^2 = G \frac{m}{s} \text{ (Another Newton's Equation [9]; goes to zero at the infinity, Figure: 1)} \quad (10)$$

3. Doing the development and applying the light photons limit, ($v \rightarrow c, m \rightarrow m_p$) taking into account that G is the universal gravitational constant:

$$\bar{F}_a = -\bar{\nabla} \mathfrak{I} = \mathfrak{I} \iiint \left(\frac{\hat{s}}{s} + \frac{\hat{t}}{t} + \frac{\hat{m}}{m_p} \right) d_s d_t d_{m_p} \quad (11)$$

4. Dias' Equation (2) (11) based on Reitz & Milford (7) (8) [10] can be represented as follows:

$$m_{rf}\bar{g} = -\bar{\nabla} \left[\iiint \frac{1}{2} (\bar{E} \cdot \bar{D} + \bar{H} \cdot \bar{B}) d_s d_t d_{m_p} \right] \quad (12)$$

Where:

$$\bar{g} = c^2 \iiint \left(\frac{\hat{s}}{s} + \frac{\hat{t}}{t} + \frac{\hat{m}}{m_p} \right) d_s d_t d_{m_p} \quad (13)$$

5. Taking (13) in (12) gives:

$$\frac{-\bar{\nabla} (\bar{E} \cdot \bar{D} + \bar{H} \cdot \bar{B})}{(\bar{E} \cdot \bar{D} + \bar{H} \cdot \bar{B})} = \left(\frac{\hat{s}}{s} + \frac{\hat{t}}{t} + \frac{\hat{m}}{m_p} \right) \quad (14)$$

6. The negative sign on the gradient (11) (12) (14) means space $s = (x^2 + y^2 + z^2)^{\frac{1}{2}}$ implosive, time t regressive and light photons m_p cumulative inside black holes as dark matter, because the universe is in contraction, the energy \mathfrak{I} is dark and cold and the universal gravitation law is represented by the universe's figure of a hyperboloid of revolution at the fifth dimension (Figure: 1).

Conclusion

1. Space is implosive, time is regressive and light photons are cumulative inside black holes as dark matter, inclusive inside the Big Hole, because the universe is in contraction, the energy is dark and cold and the universal gravitation law is represented by the universe's figure of a hyperboloid of revolution at the fifth dimension;
2. The link between gravity and electromagnetism is only made at the fifth dimension, between the mass and its equivalent, the energy;

3. Dias' Equation, as represented by the quantum mechanics (12), makes the mathematical link between gravity (\bar{g}) and electromagnetism ($\bar{E}, \bar{D}, \bar{H}, \bar{B}$) in the unified field's theory;

4. Dias' Equation, as represented by the mathematical relation of quantum mechanics (14), confirms that light is electromagnetic wave and particle at the same time, and also shows that gravitational waves are the electromagnetic waves themselves in the light photons limit. Because of its importance for electro-gravity-magnetism, Dias' Equation (14) should be included among Maxwell's Equations.

References

1. Hoyle F (1950) The Nature of the Universe, Basil Blackwell Ed., Oxford – England.
2. Lemaitre G (1931) Expansion of the universe, A Homogeneous Universe of Constant Mass and increasing radius accounting for the radial velocity of extragalactic nebulae. Monthly Notices of the Royal Astronomical Society 91: 483-490.
3. Einstein A (1905) Is the inertia of a body dependent on its energy content? Annals of Physics 323: 639 – 641
4. Dias AC (2017) Relativistic Gravitational Field and the Universe's Figure of a Hyperboloid of Revolution at the Fifth Dimension. Journal of Astrophysics & Aerospace Technology. 5: 151
5. Dias AC (2018) A Proposal for Evolution to the Universe. Nessa Journal of Physics. 1: 6.
6. Dias AC (2018) Tutorial: About Universal Evolution. Nessa Journal of Physics. 1: 9.
7. Hawking S (1971) Gravitational Radiation from Colliding Black Holes. Physical Review Letters. 26: 1344-1346
8. Einstein A (1916) Die Grundlage der Allgemeinen Relativitätstheorie, Annalen der Physik 354: 769 – 822.
9. Newton I (1687) Philosophiae naturalis principia mathematica (Mathematical principles of natural philosophy).
10. Reitz JR and Milford FJ (1970) Foundations of Electromagnetic Theory. Addison-Wesley Pub. Comp Sec Ed.