Ten Explanations on Essential Subjects of the Modern Theoretical Physics which need Immediate and Radical Re-studying. Part One.

Abstract

Many explanations on essential subjects of the modern theoretical physics leave a lot of unanswered questions. Certainly, the proposal of these explanations has been formulated based on the rationale that their definite establishment would take place only when all questions on each and every explanation would have been answered. However, as time passed by, the questions that had to be answered have been forgotten and the explanations have been established without the provision of the respective answers. The result of this tactic was the introduction of a lot of erroneous explanations in the modern theoretical physics; which need immediate and radical re-studying. In the present paper, I describe these explanations, adding some new proposals, which I believe will help this re-studying.

Vaggelis Talios, E-mail, vtalios@gmail.com: Dipl. Mechanical & Electrical Engineer (N.T.U.A.). Researcher, Author and the Inspirer of the trilogy of the creation: The "theory of the chain reaction", the "theory of the unification of the fundamental forces and the physical theories" and the "theory of the creation of matter and antimatter".

In theoretical physics, the correct answer to a subject is usually determined. What we try to explain today is how this particular answer has been created? For example, I mention

the phenomenon, of the Moon eclipses, a very well-known phenomenon. The explanation given was about the reason why eclipses happen and the correct answer provided was that, at the time of the eclipse, the Earth is interposed between the Sun and the Moon and, therefore, its shadow falls on the Moon creating the eclipse.

But, as in the issues of theoretical physics we already know the answer, we are often led to establish explanations that, although they seem correct at first, when we start to assess them more carefully, realize that the explanations have discovered leave many unanswered questions. In this case, the explanations are temporarily established, on the condition that they will become definite after the clarification of all the unanswered questions.

However, frequently, passing the time, we forget the questions we have the obligation to answer and establish the explanation definitively, leaving it with a permanent dispute. In the modern theoretical physics, many such explanations have been established. In this paper, I try to describe ten of these explanations that require immediate and radical re-studying and at the same time, add some new views of mine, which I believe will facilitate the work of re-studying.

1. **The creation of the Universe.**

Man has always been trying to explain how all those happening around them were created and evolved. Many theories have been at times proposed about the creation of the Universe; the most prominent one is the Big Bang theory, which explains the creation in its own convincing way.

According to the Big Bang theory, the Universe has been created by a big explosion. Initially, and according to the theory, there was a small ball with size less than that of an egg. This small ball contained within it all the material needed for a Universe to be created. At a certain point of time, the ball exploded and the material it contained were dispersed creating the Universe exactly as we know it today.

The above explanation was a very nice and convincing one explanation about how the Universe was created. Furthermore, there were a lot of indications advocating this explanation. But, when scientists started to review it more carefully, several questions resulted, rendering the explanation fairly flawed. The most basic question was the following: how had it been found and what was this small ball from the explosion of which a whole Universe has been created?!!! However, as time passed by, the question has been forgotten

and the Big Bang theory has been established as the most predominant theory of the creation.

Certainly, later, many other questions about the Big Bang theory have been formulated, but they are of no significance if the first and main question about the origin and the nature of this small ball from the explosion of which a whole Universe has been created is not answered.

In order to facilitate the re-studying, I propose also a new explanation I describe in the "theory of the chain reaction", in my book "From the inside of the quarks and up to beyond the Universe" [1], a summary of which, you can read, in my paper "A brief summary of the theory of the chain reaction" [3].

According to the "theory of the chain reaction", in the beginning, there was absolutely nothing in the Universe. The whole Universe consisted of a very big, vast, absolute void space. At a certain point of time and under these conditions, something happened (as a natural abnormality). This event was the creation of an elementary particle, without mass or dimensions, that the theory named it "pointon". The only characteristic feature of the pointon that had been created was its electromagnetic charge, which was equal to one third of the electromagnetic charge of a proton.

In reaction to the abnormality that created the pointon, in zero time, opposite entities the elementary particles, "antipointons" have been created, with opposite charge equal to one third of the charge of an electron. This reaction had been once more considered a new abnormality for the coverage of which new pointons had been created. Thus, a very quick "chain reaction" started, creating pointons and antipointons; this chain reaction continues until now, beyond the borders of our Universe or the other Universes and Antiuniverses.[1]. The total energy of the particles created was "zero" and their one and only characteristic was their electromagnetic charge.

The electromagnetic charge, of the pointons and antipointons created, generated attraction among the heteronymous particles and repulsion among the homonymous ones. In this way, two opposite trends started to evolve, the attraction that aimed to yield the self-destruction and neutralization among the particles created so that they would end in their natural sum, which was zero; and the repulsion that aimed to protect the particles

[1] According to the theory of the chain reaction, along with the Universe, the Antiuniverse and the other Universes and Antiuniverses are created, all together forming the Cosmos.

from their self-destruction as stated above, so that they would then create the other elementary particles of matter and antimatter. Those trends corresponded to the "electromagnetic forces" as these are nowadays accepted in physics. The "pointons" and "antipointons" and the "electromagnetic forces" are the only "necessary" and "absolutely sufficient" as well, elements from which the Universe, as we know it today, the other Universes and Antiuniverses, as well as the whole Cosmos, were created, [1], [3].

2. Are there the boson particles or not?

According to the established standard model, the particles participating in the creation and the functioning of the Universe are divided in two large classes: the fermions[2], from which matter and antimatter is created; and the bosons[3], which contribute in the adhesion of the fermions for the creation of matter and antimatter and the rest of the functioning of our Universe or the whole Cosmos as well.

For the moment, there is no data of a direct observation of a boson and, especially: photons are detected indirectly due to the electromagnetic interactions generated between charged fermions or charged material bodies. The particles W^+, $W^=$ and Z^0 too, are detected in a similar way; these particles generate the radioactive interactions. The gravitons have been established only in order to justify the existence of gravity and the gluons have been established in order to justify the existence of the strong nuclear force, without any other evidence that would justify their existence.

Then and, although extended research and a lot of too expensive and highly accurate experiments have been performed in order to discover eventual qualities of the bosons, no interesting data have been found until now. This idleness and the lack of data bring us back to a previous assumption, that of ether case. In the ether case, the historical at that time experiments performed for its discovery led to the exactly opposite conclusion, i.e., that ether does not exist.

So, is it no possible that the case of the existence of bosons might be something similar? In addition, to the case of the ether, the case of the bosons is even clearer than that of

[2] Six fermions contribute in the creation of matter and antimatter; i.e., the up and down quarks, the electron and their respective antiparticles.

[3] Six bosons contribute in the generation of the four fundamental forces; the photon, which generates the electromagnetic force, the graviton which generates the gravitation the gluon, which generates the strong nuclear force; and the particles W^+, W^- and Z^0, which generate the weak nuclear force. The bosons do not have antiparticles.

ether considering that very serious theories already exist, which for unknown reasons remain in dark; which can more reliably describe the creation of the four fundamental forces, the creation of matter and antimatter and the function of the Universe, without need for intervention by bosons, [2].

Certainly, even after a positive answer to the question whether boson particles exist or not, i.e., if it is proven that bosons really exist, a series of new questions will rise to which it there are doubts if physics will be ever able to provide answers[4]. In this case, a version of physics without bosons might be probably proven an even better solution than a positive answer on the subject of the existence of the bosons.

Note: Physicists classify also the Higgs particles in the class of bosons; those, according to the established model, are the particles that give mass to the other subatomic particles. Research on Higgs particles are still in progress at CERN. There are several questions about Higgs particles, but the scientists hope that with the completion of the research they will have been answered. What I would like to add about Higgs particles is that there are many other theories about the origin of the mass of the subatomic particles without the intervention of the Higgs particles, which should be considered in the research performed so that the latter will not be biased to only one direction.

3. **The theory of the relativity.**

The theory of the relativity consists of two partial theories: the theory of the special relativity and the theory of the general relativity.

Among these two theories, the theory of the special relativity is based on two axioms:

That of the unchangeable of the nature's physical laws, which tells us that: the laws of physics are the same in all inert systems and:

The axiom of the constant speed of light, i.e., that: the speed of light in vacuum is constant (c)[5] and does not depend on the motion of the source emitting it –Figure 1–, next page, or on the motion of the observer measuring its speed –Figure 2–.

[4] Some of the questions that will arise are: a) What is the mechanism created the bosons? b) What is the position and the relationship of the bosons with the fermions? c) Who is the mechanism that incorporated the bosons, so harmoniously within matter, without the slightest failure? d) What are the sizes of the bosons? e) Why do the gravitons "as carriers of the mass" always coexist with the photons, "which are the carriers of the loads", and how the gravitons and the photons have the same properties, the same ranges, but different power and different polarity behavior? f) Why do bosons have no antiparticles? etc

[5] The speed of the light in vacuum is $c = 299.792.458\, m/s$

In what concerns the unchangeable of the physical laws of the nature, the theoretic and experimental advances in the physics science confirmed that the axiom is correct indeed. In what concerns the axiom of the constant speed of light, the cases of the constant speed (c) of the dispersion of light in vacuum apply, as well as that this speed does not depend on the motion of the source that emits it

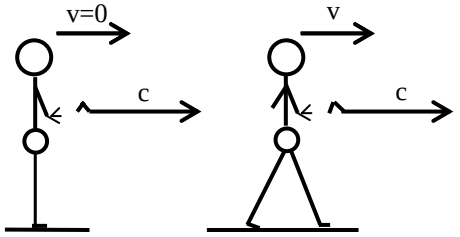

Figure 1. Emission of a light beam from a stationary or moving source.
–classic mechanics - special relativity–

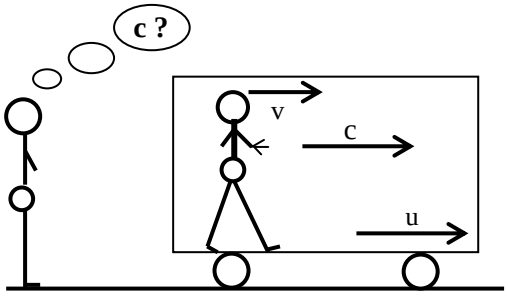

Figure 2. Measurement of light beam speed by a nonmoving observer
–special relativity–

However, at this very point the erroneous explanation; that as light does not depend on the motion of the source emitting it and maintains its constant speed (c) it means that it does not follow the law of superposition, which tells us that, in any system, the total result of a phenomenon consisting of partial phenomena, is equal to the sum of the results of the partial phenomena, has been formulated.

Thus, and absolutely arbitrarily, an indisputable and unchangeable physical and mathematical law has been violated, in the case of light. Nowadays, it is absolutely clear and correct that the speed of light, as an immaterial interaction, does not depend on the speed of the source emitting it. But this does not necessarily mean that its motion does not follow the law of superposition.

Einstein amplified even further this mistake when he arbitrarily generalized it for all cases of dispersion of light as well, assuming that even a nonmoving observer outside a space moving with a speed u, will measure the speed of light (c) for a radius moving into the space, as shown in –Figure 2– and not (c+u), as defined by the law of superposition, –Figure 3–.

After the assumption that the nonmoving observer will measure the speed of light (c)

and not (c+u), which is the correct value, all the formulas and the calculations of the theory of the special relativity containing the speed of light (c) and calculations that do not take into account the law of superposition are altered and lead us to erroneous results. And, if the speed (c) is found at the denominator of the formula the mistake is very small[6], of about $1/c^2$, but if speed (c) is found at the numerator of the formula, the mistake is very big[7], of about $1*c^2$.

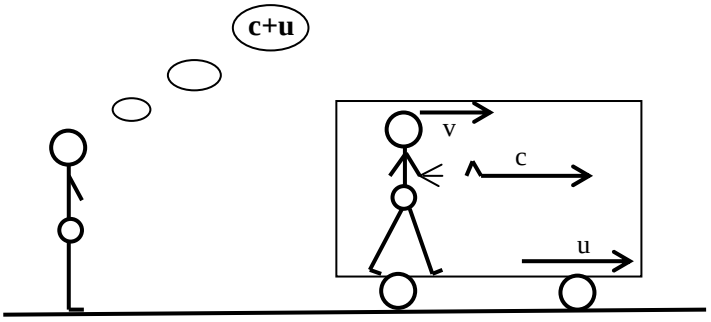

Figure 3. Measurement of light beam
speed by a nonmoving observer
–classic mechanics–

So the forms of the deletion of time and the contraction of length for bodies moving at high velocities were calculated and then the formula $E = mc^2$, which is supposed that calculate the kinetic energy of a body of mass m moving at velocity u, which in classical mechanics is calculated, $E = 1 / 2mu^2$, while in the special theory of the relativity, it is estimated to be, $E = mc^2$!?

In order to resolve the above problems, new mistakes were made, which characterized the cases of the deletion of time and contraction of length as peculiarities of nature; and on the other hand, the huge difference in the calculation of the kinetic energy between classical mechanics and the theory of the special relativity as the transition of the kinetic energy of mass into inner energy, an explanation that, in every possible way is nothing more than an incomprehensible correlation. In addition, physicists supporting the theory of the special relativity named the formula, $E = mc^2$!? the equation of the 20th century.

In what concerns the theory of the general relativity, it has been proposed to supple-

[6] The deletion of time, the contraction of length, the Gemini phenomenon etc.
[7] The calculation of the kinetic energy of a body, with mass m, moving with speed u.

ment the Universal Law of Attraction[8] and some weak points of Newton's gravity like as:

First weak point: According to the Universal Law of Attraction in the case of very small distances[9] between two material bodies or two atoms, or distance *r=0*, Newton's gravity takes very high values or becomes infinite, something not conform with the behavior of gravity in nature.

Second weak point: In the case of big masses[10] and relatively small distances[11], the results of the Universal Law of Attraction differed significantly, compared to the real physical results of gravity and.

Third weak point: There is also a third weak point, which can be formulated in the question: How are the masses generating gravity, created?

So, after the theory supplemented the second weak point, the other two points have been forgotten and the theory of the general relativity has been established as a universal theory on gravity, without answers to supplement them.

4. Does matter attract or repel antimatter?

Today, the science of physics and the majority of physicist support the view that matter and antimatter are attracted, but they do not propose any theoretical or experimental proof that would confirm this assumption. This means that they de facto accept the attraction of matter and antimatter, whereas they also consider heretic the scientists supporting the view that matter and antimatter are repelled.

Initially, the acceptance of the view that matter attracts antimatter by scientists passed quite unnoticed. It rather facilitated the whole condition, as it agreed also with the concepts of the Big Bang theory. However, as time passed by and newer discoveries came to light, it was found that the acceptance of the view that matter attracts antimatter contributed in the effort to answer several questions, but, at the same time, yielded new unanswered questions, such as: How is the accelerated motion of Galaxies explained? How has matter been separated from antimatter? What happened to antimatter and where is it now? How have the Galaxies been formed? and other very basic questions to which no satisfactory answers have been given until now.

[8] The Universal Law of Attraction is expressed by the formula: $F_{NG} = G\frac{m_1 * m_2}{r^2}$

[9] Distances not exceeding of some atomic radii.

[10] For masses equal to about that of a planet.

[11] For distances within the solar system, such as the orbits of the planets.

If we accept the view that matter repels antimatter, a view that is also part of the rule of the uncharged particles or bodies, which tells us that:

Between charged particles or charged bodies of matter and antimatter, the likely charged particles or bodies are repelled and the oppositely charged ones are attracted. On the contrary, between uncharged particles or uncharged bodies of matter and antimatter, the likely masses are attracted –matter to matter and antimatter to antimatter– and the opposite ones are repelled –matter and antimatter– as discussed in detail in my work "Does matter attract or repel antimatter" [5], we will notice that the assumption that matter and antimatter are repelled provides answers to all of the above questions and, specifically:

1. To the question how the accelerated motion of the Galaxies is generated, the answer given is the following: along with matter antimatter is created. Matter and antimatter are repelled and, as a result, repulsive forces are exerted continuously on the aggregations of matter and the aggregations of antimatter. These forces that are applied on the aggregations of matter and the aggregations of antimatter generate, according to the laws of mechanics $(\gamma=F/m)$, accelerated motions.
2. To the question how matter separated from antimatter, the answer is obvious: matter was separated from antimatter due to the repulsion between matter and antimatter.
3. To the question what happened to antimatter and where it is, the answer is the following: in the previous question, we saw that matter was separated from antimatter. Matter created the Universe and any eventual other Universes. Antimatter created the Antiuniverse or/and the Antiuniverses. The other Universes and Antiuniverses are at such distances from our Universe that, under the conditions existing today, we can make absolutely no prediction on an eventual discovery of or communication with another Universe or Antiuniverse.
4. To the question how the Galaxies were created, the answer is the following: the mechanism of the creation and the motion of the aggregations of matter and antimatter, by which the material bodies are attracted, the bodies of antimatter are also attracted and the material bodies repel the bodies of antimatter, creates the conditions for the formation of aggregations bearing the features of Galaxies. Howev-

er, a lot of study is still necessary in order for us to reach a certain definite conclusion.

I close this section, expressing the hope that it will not be considered a cause for dispute among scientists about who are right; those advocating that matter attracts antimatter or those supporting the opposite, but rather be the incentive that will lead scientists to study the issue in depth and then reach their final and definite conclusion about what exactly happens.

5. **The elementary particles.**

By the term elementary particles, we define the smallest subdivisions of matter, that is, the particles cannot be divided into other smaller particles. People have always been trying to explain to where extent the subdivision of matter and to identify these little subdivisions, hoping that with these subdivisions they will also explain how matter originates too.

Among the first people that studied the philosophical concept of matter were the ancient Greek philosophers; among them the names of the Pythagoreans, Thales of Melitus, Anaximandros, Heraclitus, Zeno of Elea, Diogenis and many others are distinguished, having each interpreted in his own way the behavior and the entity of the material objects.

Notable was the Aristotle's view who believed that matter is continuous. So we could divide a piece of matter into small pieces with no limits. In this sense there is a continuous division of matter, meaning that we will never encounter a piece of matter that we cannot divide into other smaller pieces.

On the other hand, Democritus maintained the opposite, i.e. that matter is granular by its nature and that every material body consists of a very large amount of different atoms. And in this case, with the word "atom", Democritus described precisely the last subdivision of matter; a subdivision, after which, matter could no more be further fragmented.

Research and discussion on Aristotle's and Democritus' various points of view, lasted many centuries and neither part was able to present either a theoretical or an experimental proof confirming the correctness of its arguments. This lasted until 1803, when Dalton, the famous British physicist, in his effort to explain the phenomenon of multiple proportions of the elements in the various chemical reactions, formulated the thought that this

phenomenon is due to the fact that matter consists of small particles which he named "atoms"; using the same name that Democritus had used twenty centuries earlier.

The above conflict between Aristotle's and Democritus' points of view, as they have been supplemented by Dalton, continued for one more century, until 1905, when Einstein[12] made a very important observation about the existence of the atoms. Einstein's observation was that, within a liquid or a gas, a random continuous movement of various dust particles is performed. This movement, -which physics has named "Brownian movement" after the scientist who observed it-, as a physical phenomenon, could be explained only by the movement of the "atoms" into the liquid or the gas and their collision with the microparticles of dust.

Thus, based on Dalton's observations about the phenomenon of multiple proportions of the elements in the various chemical reactions and then on those of Einstein about the "Brownian movement", the experimental proof that matter consists of various small particles, the "atoms", confirmed, justifying initially the views of Demokritos as at first, atoms were considered as elementary particles.

But with the discovery of the atom, new questions arose about what they are, what they are composed of and how they were created? At that time, around 1910, after the experimental proof of the existence of the atoms, suspicions that the atoms in turn should not be the elementary particles, but must consist of other smaller elements of matter, already existed. Several particles negatively charged, with a very lower mass -about one to two thousand times-, the well known today "electrons" had already been experimentally traced in the mass of the hydrogen atom. Thus, the discovery of the electrons led scientists to the indisputable conclusion that other, smaller, sub-divisions of matter also exist and that, therefore, its division does not end in atoms. In 1911, the British physicist, Rutherford, proved that the atoms can be subdivided in smaller particles and, specifically, that they consist of a nucleus, which is positively charged, around which the electrons; the particles that had already been discovered move.

This model for the structure of the atom, with the compact nucleus and the electrons spinning around it, did not last but just about 20 years, until 1932, when James Chadwick

[12] Einstein was a very great scientist, perhaps the greatest physicist of the 20th century. But I think do a great deal of harm to both Einstein and physics, all these who associate Einstein's grandeur with the theory of the relativity. Einstein was honored in 1921 with the Nobel Physics Award, generally for his services, in theoretical physics and especially for the discovery of the law of the photoelectric phenomenon, and not for the theory of the relativity.

discovered that the nucleus of the atom, in his turn, does not consist of electrons and protons, but that it consists of two different particles indeed, with the following difference, however: one of those particles is the “proton” particle, which, as described above, had already been discovered, but the second one is not the electron but a neutral, new particle “without charge”, with a mass approximately equal to the mass of the proton; this particle, due to the fact that it was neutral, was named “neutron”. So the new image of the atom at that time was formed: of a nucleus, which is the compact part of the atom that consists of a total of protons and neutrons around which the electrons spin. The electrons, the protons and the neutrons were thought to be then the elementary particles of matter..

However, one more time, scientists were contradicted, as about thirty years ago, in some experiments conducted at the California Institute of Technology, in which high-speed protons collided with other protons, it was shown that protons and neutrons are not performed at the California Institute of Technology, in which high speed protons collided with other protons, it was shown that protons and neutrons are not elementary particles. Specifically, it was shown that protons and neutrons are complex particles consisting of triplets of other particles, the “quarks” up and down.

With the discovery of quarks up and down, the search for the elementary particles has now been limited to seeing what happens with the electron that has so far been undeveloped and whether the quarks and the electron are elementary particles? That is, αre the smaller subdivisions of matter? or its division goes further, even after the electron and the quarks? But to this day, the question of whether the quarks up and down and the electrons are divisible or indivisible particles of matter remains unanswered.

An experimental answer to the above question, whether a quark is a divisible or indivisible particle of matter, by direct observation of the may be a very far fetched issue. At the moment, however, what can settle things is a theoretical answer. On the other hand, the theoretical answer that will be given must have both to be completely adjusted to the data existing today and to be quite convincing and understandable in order to clarify the answer to our question about the divisibility of the quarks and not complicate it even more. In this way, I feel that the answer I describe constitutes an important step towards the solution of this problem

So let us try to form mentally a probable mechanism with which particles with a particular charge and particles with “exactly double charge” can be produced –as it happens

with the quark "up"[13] and the quark "down"[14]–; we shall then discover that the simplest, most possible and reasonable way is to create a mechanism that will produce the smallest particles and the bigger ones will be produced by the doubling of the smallest particles that we have already produced. This is also the way in which nature, that always takes the simplest and most reasonable course of evolution, selected a similar mechanism for the formation of the quark up. Thus, we can assume that at least the quarks up and the electron are "divisible particles".

At this point I shall remind the readers the case of the discovery of the divisibility of the atom, when, around 1910, Joseph Tomson noted that there are particles, the "electrons", which have a mass much smaller than the mass of the atom of hydrogen. So the same question rises here again; could we have a similar case with the quark up and the electron like the one we had with the atom, leading us to the indication that the quark up, perhaps all types of quarks and the electron –as I describe in the "theory of the chain reaction"– are, in their turn, divisible particles?

However, our problem is neither solved nor ended with the discovery and statement that the quarks and the electron have subdivisions; but it remains, as we have to find out what these subdivisions are and study –at least theoretically– the probable mechanism by which the quarks and the electron are consequently formed from these subdivisions.

In this case, then, I shall suggest a new, elementary, indivisible particle without *mass* or *dimensions*, with a charge equal to 1/3 of the charge of the proton, which I shall temporarily name it "pointon". Together with this particle I shall also suggest its respective antiparticle, the "antipointon", which has a charge exactly opposite and equal to 1/3 of the charge of the electron.

The selection of these particles, pointons and antipointons, was not made randomly, but it was made because these particles constitute the smallest subdivision of charge found until our days, as well as, as we shall see, these particles fulfill all the requirements to be the smallest, indivisible, without mass and dimensions units of charge and matter. At the same time, the selection of these particles will constitute the basis for the successful development of the "Theory of the chain reaction", [3].

By selecting the pointons and the antipointons as I analyze in the "Theory of the chain

[13] The quark "up" charge is opposite but double of the charge of the quark "down".
[14] The quark "down" charge is equal to one third of the charge of the electron.

reaction", the elementary components of matter and antimatter are now limited to these two particles, only charges, without mass and dimensions, and to the electromagnetic interaction between them, created without the need of photons; from the electromagnetic interaction, the pointons and the antipointons, created then, all the other particles of matter and antimatter and all the other interactions[15].

The answer I am describing does not only answer the question if the quarks and the electrons are elementary particles, but it also leads us to the actual elementary units of matter and antimatter. To these units were based on, the "Theory of the chain reaction", [1] [3], the theory of "The unification of fundamental forces and physical theories" [2]. as well as the theory of "The creation of matter and antimatter", three theories, which I believe put strong foundations in the formulation of the "theory of everything". All we need to do is to set all above up, to study them carefully, to complete them and to support them, … but I think that's still too early for such thoughts ....

–After a while I will finish and the second part of the work–

References

[1] V. Talios, *"From the Inside of Quapks and up to Beyond the Universe"*, Nova Science Publishers, Inc. (2011).

[2] V. Talios, *"The Real Grand Unification"*, Laplambert Academic Publishing (2016).

[3] V. Talios, *"The Theory of the Chain Reaction",* viXra:1802.0233 (2018).

[4] V. Talios, *"Are the "quarks" and the "electron", elementary particles?"* viXra:1803.0244 (2018)

[5] V. Talios, *"Does Matter Attract or Repel Antimatter?"* viXra:1805.0368 (2018).

[15] Gravity, strong and week nuclear forces