

# Beyond the Material Universe

Fran De Aquino

Maranhao State University, Physics Department, S.Luis/MA, Brazil.

Copyright © 2011 by Fran De Aquino. All Rights Reserved

Science and Religion have always observed the events from their exclusive viewpoint. It was necessary the arising of a bond that would make possible the *unification* of them. This bond was revealed in the last decades by Quantum Physics, which has shown us that some physical laws extend beyond the material world, pointing to the existence of the spiritual world. Thus, the spiritual world exists now no longer as supernatural one, but as world as real as our material world. This discovery marked the beginning of the understanding of the spiritual world *nature* and *its relationship with the material world*. Starting from this knowledge, here widely detailed, it is now possible to understand the eternal puzzles: *where have we come from, because here we are, and where do we go*.

**Key words:** Science, Religion, Spiritual World, Quantum Gravity, Quantum Cosmology, Quantum Consciousness.

## 1. Introduction

The Spiritual World has always been considered something supernatural. Only recently, with the advent of Quantum Physics, the first evidences of its existence arose. However, it was the theoretical background derived from Quantum Gravity [1] that has shown that our *Real* Universe is contained in an *Imaginary* Universe. Here, the terms real and imaginary are borrowed from mathematics (real and imaginary numbers). In addition, it has been possible to show that the Imaginary Energy has the same characteristics of the Psychic Energy, that is, both are equivalent. This means that the Imaginary Universe is in fact the Psychic Universe. This discovery was the starting point for understanding the *nature* of the Spiritual World and beings it contains. It also made possible the acquisition of a strong knowledge about the relationship of the beings of the Spiritual World with us, and with our Material World. This knowledge, which leads us beyond the Material Universe, is widely detailed in this work.

## 2. The Psychic Energy

It is known that the De Broglie waves are characterized by a variable quantity called the *wave function*, denoted by the symbol  $\psi$ . While the frequencies of the De Broglie waves are determined by a simple form, the value of  $\psi$  is usually very complicated. The value of  $\Psi^2$  (or  $\Psi\Psi^*$ ) calculated for a particular point  $x, y, z, t$  is proportional to the probability of finding the particle experimentally in that place and time<sup>1</sup>.

Thus, each particle has a particular *wave function*, which describes the particle fully. Roughly, it is similar to the "identity card" of the particle, containing all information about the particle or the body.

Since  $\Psi^2$  is proportional to the probability  $P$  of finding the particle described by  $\Psi$ , the integral of  $\Psi^2$  on the *whole space* must be finite – inasmuch as the particle is someplace. Therefore, if

$$\int_{-\infty}^{+\infty} \Psi^2 dV = 0 \quad (01)$$

The interpretation is that the particle does not exist. However, if

---

<sup>1</sup> Interpretation by Max Born in 1926.

$$\int_{-\infty}^{+\infty} \Psi^2 dV = \infty \quad (02)$$

the particle will be everywhere simultaneously.

Despite the fact that the De Broglie waves are normally associated to material particles and, in general associated to material bodies, it is known that they are also associated to exotic particles that cannot even be detected, such as a type of neutrinos called "ghost" neutrinos, predicted by General Relativity. These are called "ghost" neutrinos, because they have *zero mass* and *zero momentum*, and cannot be detected. But even so, it is known that there are wave functions that describe them, which means that they exist and can be present in any place. As a rough analogy, it is like a person who, despite of existing and possessing an identity card, is never seen by anyone. The existence of a wave function associated with the "ghost" neutrino is very important, because, in this context, we can conclude that even a *thought* may have a wave function associated with it.

It is a proven quantum fact that the wave function  $\Psi$  may "collapse" and, in that instant, the possibilities that it describes, suddenly express themselves in *reality*. The moment of the "collapse" of the wave function is then a decision point where the pressing need of *realization* of the possibilities described by the wave function occurs.

For an observer in our universe something is *real* when it is in the form of *matter* or *radiation*. Therefore, it can occur that the possibilities described by the wave function realize themselves in the form of radiation, i.e., they did not materialize. This obviously must occur when the energy that forms the content described by the wave function *is not equal* to the amount of energy needed for its materialization.

Then consider any *thought*. A thought is a psychic body, with a well-defined psychic energy, and, as such, with a wave function of its own as any other *psychic body*. When its wave function collapses, two possibilities may occur: (a) the psychic energy contained in the thought *is not sufficient* to materialize its content - in this case, the collapse of the wave function is *realized* in the form of radiation: (b) the psychic energy *is sufficient* for its materialization - in this case, the collapse of the wave function content will be fully materialized.

However, in both cases, there must always be production of "virtual" photons to communicate the psychic interaction to other bodies of the universe, because, according to the quantum theory, only through this type of *quanta*, can the interaction be communicated, since it has infinite range just in the same way as the electromagnetic interaction has, which we know is communicated by exchanging "virtual" photons. The term "virtual" derives from the *principle of uncertainty* due to the impossibility to detect these photons. This is a limitation imposed by Nature proper.

It can be easily seen that this *materialization process*, although theoretically possible, requires enormous amounts of psychic energy, because, according to Einstein's famous equation  $E = mc^2$ , even a tiny object contains an enormous amount of energy. Moreover, one can conclude that materializations of this type could only be produced by great consciousness with large psychic energy. In addition, it is evident, in this context, that the larger the amount of psychic energy of a consciousness the greater its chances of realization.

This is a materialization process that can explain the materialization of the Primordial Universe. In addition, it becomes evident that the Psychic Energy is a type of mother-energy or Universal Fluid, which can produce anything.

Since it is in the continuum 4-dimensional (space-time) that the realization of the wave functions which describe the psychic bodies occurs, then we can assume that they are generated in a continuum that, despite of containing all psychic forms, also interpenetrates the space-time continuum. Let us call it, hereafter, Psychic Continuum. By definition this continuum should also contain the Supreme Consciousness. Therefore, it should be infinite.

Then, from the above we can see that an accurate description of the universe cannot exclude the psychic energy, psychic particles and psychic bodies. That is, the situation calls for a cosmology that includes the psyche in the description of the Universe, thus complementing the traditional cosmology that is only a matter of cosmology. This idea is not new; it has existed for some time and seems to have arisen mainly in Princeton and Pasadena in the USA in the 70s [2] as a result of the joint effort of eminent physicists, biologists, psychologists and theologians as well. [3].

In traditional cosmology, the universe comes from a big bang where everything that exists would be concentrated in a tiny particle with the size of a proton and an enormous mass equal to the mass of the Universe at the instant before the Big Bang,. But its origin is not explained, nor the *why* of its *critical volume*.

The critical volume, in our opinion denotes *knowledge* of what would happen from these initial conditions, a fact which points to the *existence of a Creator*. In this case, the materialization process described above would explain the materialization of the Primordial Universe. That is, the Primordial Universe arose at the exact moment that *the primordial wave function* collapsed (initial instant) realizing the contents of the psychic form generated in the consciousness of the Creator when He *thought* of creating the universe.

The psychic form described by this primordial wave function must then have been generated in a consciousness with psychic energy much larger than that needed to materialize the Universe. This enormous consciousness in turn, not only would be the biggest of all consciences, but also would be the *substratum* of everything that exists, and obviously everything that exists would be wholly contained therein, including *all* space-time.

Based on the General Theory of Relativity and the recent cosmological observations, it is known that the Universe occupies a space of positive curvature. This space, as we know, is "closed in itself", its volume is *finite*, but rest well understood, the space has no boundaries, it is *unlimited*. Thus, if the consciousness which we refer to contains *all* the space, its volume is necessarily infinite, and therefore contains an infinite psychic energy.

This means that it contains *all the* psychic energy that exists and therefore, any other consciousness will be contained in it. Thus, we can conclude that it is the *Supreme Consciousness*, and there is no other like it: it is *unique*. In addition, since it contains all the psychic energy, it can accomplish *everything* that it wants, and therefore is *omnipotent*. Previously, we showed in the article "Physical Foundations of Quantum Psychology" the manifestation of knowledge, or *auto-accessible knowledge* in a consciousness, should be related to its quantity of psychic energy. In the Supreme Consciousness, whose psychic energy is infinite, the manifestation of the knowledge is *total*, thus, necessarily, it must be *omniscient*. Being omniscient, we cannot doubt its justice or goodness. Thus, God is supremely *just* and *good*. Moreover, as it also contains *all the time*, with past, present and future merging into it in an eternal present, so that the time will not flow as it does for us, in the four-dimensional continuum called space-time, as "we see" the future changing continuously into present and the present into past. Similarly, an observer in five-dimensional continuum would not have access to all time as the Supreme Consciousness, but his dimensional "vision" of the time would certainly be wider than that of the observer positioned in the four-dimensional continuum [3]. In this context, only the Supreme Consciousness would have a perfect "vision" of all dimensional levels.

When we speak of creation of the universe, the use of the verb to *create* means that anything that was not came to be; assuming therefore, the concept of time flow. For the Supreme Consciousness however, the instant of the creation coincides with all the other times, not existing neither *before* nor *after* the creation, and in this way, questions like "*What did the Supreme Consciousness do before creation?*" are not justified.

We can also infer from the above that the *existence* of the Supreme Consciousness has no defined limit (beginning and end), which gives It the peculiar qualities of *uncreated* and *eternal*.

Being eternal, its wave function  $\psi$  never collapses. Moreover, as it has infinite psychic energy, the value of  $\psi$  will also be infinite. In this way, according to Quantum Mechanics, it means that the Supreme Consciousness *is simultaneously everywhere*, or *omnipresent*.

All conclusions presented here about the Supreme Consciousness were mathematically demonstrated in the article "*Mathematical Foundations of the Relativistic Theory of Quantum Gravity*" [1], and represent nothing more than a formal finding of what was already accepted by most religions.

It is then justified the intuitive feeling that people have about the existence of God, and reveals that God is the Supreme Consciousness, *the first cause of all things*.

Although we can understand this and, thus, learn that God is psychic energy, we can say nothing about the nature of psychic energy. Likewise, we do not know the nature of electric charge, etc. This is a limitation imposed by the Creator Himself.

The option of the Supreme Consciousness in materializing the Primordial Universe into a critical volume, as we have seen, means that It knew what would happen from that initial condition. Therefore It also knew how the universe would behave under existing laws. Thus, the laws were not created *for* the Universe, and therefore are not "laws of Nature" or "laws that have been placed in Nature" as Descartes wrote. They already existed as an intrinsic part of the Supreme Consciousness; Thomas Aquinas had a very clear understanding about this. He speaks of the Eternal Law, "... those *exist* in the mind of God and rules the entire Universe."

The Supreme Consciousness had then complete freedom to choose the initial conditions of the Universe. But opted for the concentration of the early Universe in the critical volume in order that its development should be performed in the most convenient way for the purposes It had in mind, according to laws inherent in its very nature. This responds to Einstein's famous question: "What level of choice would God have had to build the universe?"

It seems that Newton was the first to realize the divine option. In his book *Opticks*, he gives us a perfect view of how he imagined the creation of the Universe:

"It seems to me that God, at the beginning, first gave way to matter in solid particles, compacted [...] in such way that best contribute to the purpose He had in mind ..."

For what purpose the Supreme Consciousness created the universe? This is a question that seems difficult to answer. However, if we assume the natural desire of the Supreme Consciousness of *procreating*, that is, of generating individual consciousness from itself so that they could evolve and express themselves creating attributes to Her, then, we can infer that in order to evolve, such consciousness would need a Universe, and this may have been the main reason for its creation. Thus, the origin of the Universe would be related to the generation of said consciousness and, consequently, the materialization of the Primordial Universe must have occurred at the same time at which the Supreme Consciousness decided *to individualize* the Primordial Consciousnesses.

As the Supreme Consciousness occupies *all* the space, it follows that it cannot be displaced by another consciousness, and not for himself. Therefore, the Supreme Consciousness is *immovable*.

As Augustine says (Gen. Ad lit vii, 20), "The Creator does not move either in time or space."

The immobility of God had been deemed necessary also by Thomas Aquinas, "we can infer be necessary that the God who puts into motion all the objects, it is immovable." (Summa Theologica).

Due to fact that they were individualized directly from the Supreme Consciousness, the primordial consciousnesses certainly contained in themselves - albeit in a latent state, all the possibilities of the Supreme Consciousness, including the germ of independent will that allows the establishment of original points of departure. However, although similar to the Supreme Consciousness, the primordial consciousnesses could have no understanding of themselves. This understanding comes only with the *creative mental state* that the consciousnesses can only achieve by evolution.

Thus, in the first evolutionary period, the primordial consciousnesses must have remained in complete unconsciousness. It was then, the beginning of a pilgrimage from *unconsciousness* to the *superconsciousness*.

### 3. The Good and the Evil

Basically, in the Universe there are two types of radiation: the *real* radiation constituted by of *real photon*, and the “virtual” radiation constituted by "virtual" photons. Previously, we talked about the "virtual" *quanta*, which are responsible for the interaction among the psychic particles. According to the Uncertainty Principle, “virtual” *quanta* cannot be observed experimentally. However, since they are interaction *quanta*, their effects may be verified in the very particles or bodies subjected to the interactions.

Obviously, only one specific type of interaction occurs between two particles if each one *absorbs* the *quanta* of said interaction emitted by the other; otherwise, the interaction will be null. Thus, the null interaction between psychic bodies particularly means that there is no mutual absorption of the “virtual” psychic photons (psychic interaction *quanta*) emitted by them. That is, the emission spectrum of each one of them does not coincide with the absorption spectrum of the other.

It was shown that, in *all interactions* (gravitational, electromagnetic, strong nuclear and weak nuclear), the "virtual" *quanta* are "virtual" *photons* [1].

It is obvious, then, that an interaction between two particles only occurs if each of them *absorbs* the "virtual" *photons* emitted by the other, otherwise the interaction will be zero. Thus, the null interaction means specifically that the emission spectrum of each particle does not coincide with the absorption spectrum of the other.

By analogy with material bodies, the emission spectra of which are, as we know, identical to the absorption spectra, also the psychic bodies must absorb radiation within the spectrum they emit. Specifically, in the case of human consciousness, their thoughts cause them to become emitters of psychic radiation in certain frequency spectra and, consequently, receivers in the same spectra. Thus, when a human consciousness, by its thoughts, is receptive to a radiation coming from a certain thought, said radiation will be absorbed by the consciousness (resonance absorption). Under these circumstances, the radiation absorbed must *stimulate* – through the *Resonance Principle* – said consciousness to emit in the same spectrum, just as it happens with matter.

Nevertheless, in order for that emission to occur in a human consciousness, it must be preceded by the individualization of thoughts identical with that which originated the radiation absorbed, because obviously only identical thoughts will be able to reproduce - when they collapse - the spectrum of “virtual” psychic radiations absorbed.

These *induced thoughts* – such as the thoughts of consciousnesses themselves – must remain individualized for a period of time  $\Delta t$  (lifetime of the thought) after which its wave functions collapse, thus producing the “virtual” psychic radiation in the same spectrum of frequencies absorbed.

The Supreme Consciousness, just as other consciousnesses, has Its own spectrum of absorption determined by Its thoughts – *which make up the standard of a good-quality thought*.

Thus, the concept of good-quality thoughts is immediately established. That is, they are *resonant* thoughts in the Supreme Consciousness. Thus, only thoughts of this kind, produced in human consciousnesses, may induce the individualization of similar thoughts in the Supreme Consciousness.

In this context, a system of judgment is established in which the good and the evil are psychic values, with their origin in free thought. *The good is related to the good-quality thoughts, which are thoughts resonant in the Supreme Consciousness. The evil, in turn, is related to the bad-quality thoughts, non-resonant in the Supreme Consciousness.*

Consequently, the moral derived thereof results from the Law itself, inherent in the Supreme Consciousness and, therefore, this psychic moral must be the *fundamental moral*. Thus, *fundamental ethics* is neither biological nor located in the aggressive action, as thought by Nietzsche. It is psychic and located in the good-quality thoughts. It has a theological basis and, in it, the creation of the Universe by a pre-existing God is of an essential nature, opposed, for instance, to Spinoza's "geometrical ethics", which eliminated the ideas of Creation of the Universe by a pre-existing God, the main underpinning of Christian theology and philosophy. However, it is very close to Aristotle's ethics, to the extent that, from it, we understand that we are what we repeatedly do (think) and that *excellence is not an act, but a habit* (Ethics, II, 4). According to Aristotle: " *the goodness of a man is a work of the soul towards excellence in a complete lifetime: ... it is not a day or a short period that makes a man fortunate and happy.* " (Ibid, I, 7).

The "virtual" psychic radiation coming from a thought may induce *several* similar thoughts in the consciousness absorbing it, because each photon of radiation absorbed carries in itself the electromagnetic expression of the thought which produced it and, consequently, each one of them stimulates the individualization of a similar thought. However, the amount of thoughts induced is, of course, limited by the amount of psychic mass of the consciousness proper.

In the specific case of the Supreme Consciousness, the "virtual" psychic radiation coming from a good-quality thought must induce many similar thoughts. On the other hand, since Supreme Consciousness involves human consciousness, the induced thoughts appear in the surroundings of the very consciousness which induced them. These thoughts are then strongly attracted by said consciousness and fuse therewith, for, just as the thoughts generated in a consciousness have a high degree of positive mutual affinity [4] with it, they will also have the thoughts induced by it.

The fusion of these thoughts in the consciousness obviously determines an *increase* in its psychic mass. We then conclude that the cultivation of good-quality thoughts is highly beneficial to the individual. Reversally, the cultivation of bad-quality thoughts makes consciousness lose psychic mass.

When bad-quality thoughts are generated in a consciousness, they do not induce identical thoughts in Supreme Consciousness, because the absorption spectrum of Supreme Consciousness excludes psychic radiations coming from bad-quality thoughts. Thus, such radiation directs itself to other consciousnesses; however, it will only induce identical thoughts in those that are receptive in the same frequency spectrum. When this happens and right after the wave functions corresponding to these induced thoughts collapse and *materialize* said thoughts or change them into radiation, the receptive consciousness will lose psychic mass, similarly to what happens in the consciousness which first produced the thought. Consequently, both the consciousness which gave rise to the bad-quality thought and those receptive to the psychic radiations coming from this type of thoughts will lose psychic mass.

We must observe, however, that our thoughts are not limited only to harming or benefiting ourselves, since they also can, as we have already seen, induce similar thoughts in other consciousnesses, thus affecting them. In this case, it is important to observe that the

psychic radiation produced by the induced thoughts may return to the consciousness which initially produced the bad-quality thought, inducing other similar thoughts in it, which evidently cause more loss of psychic mass in said consciousness.

The fact that our thoughts are not restricted to influencing ourselves is highly relevant, because it leads us to understand we have a great responsibility towards other persons as regards what we think.

#### 4. The Psychic Universe

When we studied elementary Mathematics, we learned the called *Imaginary Numbers*. Just as there are the *real* numbers and *imaginary* numbers, there are also the *real* space-time and *imaginary* time. In the article "Mathematical Foundations of the Relativistic Theory of Quantum Gravity", we showed that the former contains our *Real Universe*, and the latter contains the *Imaginary Universe*. We also saw how a material body can make a transition to the Imaginary Universe. Simply reducing its gravitational mass to the range  $+0.159M_i$  to  $-0.159M_i$ . Under these circumstances, its gravitational and inertial masses become imaginaries, and therefore, *the body becomes imaginary*. Consequently, *the body disappears* from our ordinary space-time and resurges in the imaginary space-time like an imaginary body. In other words, it becomes *invisible* for persons in the Real Universe.

What will an observer see when in the imaginary space-time? It will see light, bodies, planets, stars, etc., everything formed by imaginary photons, imaginary atoms, imaginary protons, imaginary neutrons and imaginary electrons. That is to say, the observer will find an Universe similar to ours, just formed by particles with imaginary masses. The term *imaginary* adopted from the Mathematics, as we already saw, gives the false impression that these masses do not exist. In order to avoid this misunderstanding we researched the true nature of that new mass type and matter.

The existence of imaginary mass associated to the *neutrino* is well-known. Although its imaginary mass is not physically observable, its square is. This amount is found experimentally to be negative. Recently, it was shown [1] that *quanta* of imaginary mass exist associated to the *photons*, *electrons*, *neutrons*, and *protons*, and that these imaginary masses would have psychic properties (elementary capability of "choice"). Thus, the true nature of this new kind of mass and matter shall be psychic and, therefore we should not use the term *imaginary* any longer. Consequently, from the previously described, we can conclude that the gravitational spacecraft penetrates in the *Psychic Universe* and not in an "imaginary" Universe.

In this Universe, the matter would be, obviously composed by psychic molecules and psychic atoms formed by psychic neutrons, psychic protons and psychic electrons. i.e., the matter would have psychic mass and consequently it would be *subtle*, much less dense than the matter of our *real* Universe.

From the quantum viewpoint, the psychic particles are similar to the material particles, so that we can use the Quantum Mechanics to describe the psychic particles. In this case, by analogy to the material particles, a particle with psychic mass  $m_\psi$  will be described by the following expressions:

$$\vec{p}_\psi = \hbar \vec{k}_\psi \quad (02)$$

$$E_\psi = \hbar \omega_\psi \quad (03)$$

where  $\vec{p}_\psi = m_\psi \vec{V}$  is the *momentum* carried by the wave and  $E_\psi$  its energy;  $|\vec{k}_\psi| = 2\pi/\lambda_\psi$  is the *propagation number* and  $\lambda_\psi = h/m_\psi V$  the *wavelength* and  $\omega_\psi = 2\pi f_\psi$  its cyclic *frequency*.

As we already have seen, the variable quantity that characterizes DeBroglie's waves is called *Wave Function*, usually indicated by  $\Psi$ .

The wave function  $\Psi$  corresponds, as we know, to the displacement  $y$  of the undulatory motion of a rope. However,  $\Psi$  as opposed to  $y$ , is not a measurable quantity and can, hence, be a *complex* quantity. For this reason, it is admitted that  $\Psi$  is described in the  $x$ -direction by

$$\Psi = Be^{-(2\pi i/h)(Et - px)} \quad (04)$$

This equation is the mathematical description of the wave associated with a free material particle, with total energy  $E$  and *momentum*  $p$ , moving in the direction  $+x$ .

As concerns the psychic particle, the variable quantity characterizing psyche waves will also be called wave function, denoted by  $\Psi_\psi$  (to differentiate it from the material particle wave function), and, by analogy with equation Eq. (04), expressed by:

$$\Psi_\psi = \Psi_0 e^{-(2\pi i/h)(E_\psi t - p_\psi x)} \quad (05)$$

If an experiment involves a large number of identical particles, all described by the same wave function  $\Psi$ , *real* density of mass  $\rho$  of these particles in  $x, y, z, t$  is proportional to the corresponding value  $\Psi^2$  ( $\Psi^2$  is known as *density of probability*. If  $\Psi$  is *complex* then  $\Psi^2 = \Psi\Psi^*$ . Thus,  $\rho \propto \Psi^2 = \Psi \cdot \Psi^*$ ). Similarly, in the case of psychic particles, the *density of psychic mass*,  $\rho_\psi$ , in  $x, y, z$ , will be expressed by  $\rho_\psi \propto \Psi_\psi^2 = \Psi_\psi \Psi_\psi^*$ . It is known that  $\Psi_\psi^2$  is always *real* and *positive* while  $\rho_\psi = m_\psi/V$  is an *imaginary* quantity. Thus, as the *modulus* of an imaginary number is always real and positive, we can transform the proportion  $\rho_\psi \propto \Psi_\psi^2$ , in equality in the following form:

$$\Psi_\psi^2 = k|\rho_\psi| \quad (06)$$

Where  $k$  is a *proportionality constant* (real and positive) to be determined.

In Quantum Mechanics we have studied the *Superposition Principle*, which affirms that, if a particle (or system of particles) is in a *dynamic state* represented by a wave function  $\Psi_1$  and may also be in another dynamic state described by  $\Psi_2$  then, the general dynamic state of the particle may be described by  $\Psi$ , where  $\Psi$  is a linear combination (superposition) of  $\Psi_1$  and  $\Psi_2$ , i.e.,

$$\Psi = c_1\Psi_1 + c_2\Psi_2 \quad (07)$$

*Complex constants*  $c_1$  e  $c_2$  respectively indicate the percentage of dynamic state, represented by  $\Psi_1$  e  $\Psi_2$  in the formation of the general dynamic state described by  $\Psi$ .

In the case of psychic particles (psychic bodies, consciousness, etc.), by analogy, if  $\Psi_{\psi_1}$ ,  $\Psi_{\psi_2}, \dots, \Psi_{\psi_n}$  refer to the different dynamic states the psychic particle assume, then its general dynamic state may be described by the wave function  $\Psi_\psi$ , given by:

$$\Psi_\psi = c_1\Psi_{\psi_1} + c_2\Psi_{\psi_2} + \dots + c_n\Psi_{\psi_n} \quad (08)$$

The state of superposition of wave functions is, therefore, common for both psychic and material particles. In the case of material particles, it can be verified, for instance, when an electron changes from one orbit to another. Before effecting the transition to another energy level, the electron carries out “virtual transitions” [5]. A kind of *relationship* with other electrons before performing the real transition. During this relationship period, its wave function remains “*scattered*” by a *wide region of the space* [6] thus superposing the wave functions of the other electrons. In this relationship the electrons *mutually* influence each other, with the

possibility of *intertwining* their wave functions<sup>2</sup>. When this happens, there occurs the so-called *Phase Relationship* according to quantum-mechanics concept.

In the electrons “virtual” transition mentioned before, the “listing” of all the possibilities of the electrons is described, as we know, by *Schrödinger’s wave equation*. Otherwise, it is general for material particles. By analogy, in the case of psychic particles, we may say that the “listing” of all the possibilities of the psyches involved in the relationship will be described by *Schrödinger’s equation* – for psychic case, i.e.,

$$\nabla^2 \Psi_\Psi + \frac{P_\Psi^2}{\hbar^2} \Psi_\Psi = 0 \quad (09)$$

Because the wave functions are capable of intertwining themselves, the quantum systems may “penetrate” each other, thus establishing an internal relationship where all of them are affected by the relationship, no longer being isolated systems but becoming an integrated part of a larger system. This type of internal relationship, which exists only in quantum systems, was called *Relational Holism* [7].

The idea of psyche associated with matter dates back to the pre-Socratic period and is usually called *panpsychism*. Remnants of organized panpsychism may be found in the *Uno* of Parmenides or in Heracleitus’s *Divine Flux*. Scholars of Miletus’s school were called *hylozoists*, that is, “those who believe that matter is alive”. More recently, we will find the panpsychistic thought in Spinoza, Whitehead and Teilhard de Chardin, among others. The latter one admitted the existence of proto-conscious properties at level of elementary particles.

Generally, the people believe that there is some type of psyche associated to the animals, and some biologists agree that even very simple animals like the ameba and the sea anemone are endowed with psychism. This led several authors to consider the possibility of the psychic phenomena to be described in a theory based on Physics [8-11].

The fact that an electron carries out “virtual” transitions to several energetic levels before performing the *real* transition [5] clearly shows a “choice” made by the electron. Where there is “choice” isn’t there also *psyche*, by definition?

An *elementary psyche* associated to the electron would be an entity very similar to the *elementary electric charge* associated to the electron, whose existence was necessary to postulate for the establishment of electromagnetic theory. However, the elementary psyche has unique characteristics. Being a discrete quantity (quantum) of the Supreme Consciousness, which is omniscient, it must also contain within it *all* knowledge. In the Supreme Consciousness, whose psychic energy is infinite, the manifestation of this knowledge is total. In the case of the elementary psyche, would be minimal by definition, remaining the rest of the knowledge in a latent state.

But still this knowledge would be sufficient, for example, for electrons to define their orbital position (energy level) around the nuclei when they were electromagnetically attracted by the such nuclei.

How else could they have the knowledge of the exact orbit to stay? The electrosphere of atoms is a complex and accurate structure, and in no way could have been created randomly. Its construction undoubtedly involves knowledge.

Due to the fact that the formation of the electrosphere of the atoms is an organized process, the psyches of the electrons is also grouped in an organized manner, specifically in *phase condensates*, forming, what we can define as the *Individual Consciousnesses of the atoms*. Ice and NaCl crystals are common examples of imprecisely-structured phase condensates. Lasers, superfluids, superconductors, and magnets are examples of better-structured phase condensates.

---

<sup>2</sup> Since the electrons are simultaneously waves and particles, their wave aspects will interfere with each other. Besides superposition, there is also the possibility of occurrence of *intertwining* of their wave functions.

If electrons, protons and neutrons have psychic mass, then we can infer that the psychic mass of the atoms are *Phase Condensates*. In the case of the molecules the situation is similar. More molecular mass means more atoms and consequently, more psychic mass. In this case the phase condensate also becomes more structured because the great amount of elementary psyches inside the condensate requires, by stability reasons, a better distribution of them. Thus, in the case of molecules with very large molecular masses (*macromolecules*) it is possible that their psychic masses already constitute the most organized shape of a Phase Condensate, called Bose-Einstein Condensate<sup>3</sup>.

The fundamental characteristic of a Bose-Einstein condensate is, as we know, that the various parts making up the condensed system not only behave as a whole but also *become a whole*, i.e., in the psychic case, the various consciousnesses of the system become a *single consciousness* with psychic mass equal to the sum of the psychic masses of all the consciousness of the condensate. This obviously, increases the available knowledge in the system since it is proportional to the psychic mass of the consciousness. This unity confers an *individual* character to this type of consciousness. For this reason, from now on they will be called *Individual Material Consciousness*.

It derives from the above that most bodies do not possess individual material consciousness. In an iron rod, for instance, the cluster of elementary psyches in the iron molecules does not constitute Bose-Einstein condensate; therefore, the iron rod does not have an individual consciousness. Its consciousness is consequently, much more simple and constitutes just a phase condensate imprecisely structured made by the consciousness of the iron atoms.

The existence of consciousnesses in the atoms is revealed in the molecular formation, where atoms with strong mutual affinity (their consciousnesses) combine to form molecules. It is the case, for instance of the water molecules, in which two Hydrogen atoms join an Oxygen atom. Well, how come the combination between these atoms is always the same: the same grouping and the same invariable proportion? In the case of molecular combinations the phenomenon repeats itself. Thus, the chemical substances either mutually attract or repel themselves, carrying out specific motions for this reason. It is the so-called *Chemical Affinity*. This phenomenon certainly results from a specific interaction between the consciousnesses. From now on, it will be called *Psychic Interaction*.

After the formation of the first planets, some of them came to develop favorable conditions for the appearance of macromolecules. These macromolecules, as we have shown, may have a special type of consciousness formed by a Bose-Einstein condensate (Individual Material Consciousness). In this case, since the molecular masses of the macromolecules are very large, they will have individual material consciousness of large psychic mass and, therefore, have access to a considerable amount of information in its own consciousness. Consequently, macromolecules with individual material consciousness are potentially very capable of, and some certainly already can carry out, autonomous motions, thus being considered as “living” entities.

However, if we decompose one of these molecules so as to destroy its individual consciousness, its parts will no longer have access to the information which “instructed” said molecule and, hence, will not be able to carry out the autonomous motions it previously did. Thus, the “life” of the molecule disappears – as we can see, *Delbrück’s Paradox* is then solved<sup>4</sup>.

---

<sup>3</sup> Several authors have suggested the possibility of the Bose-Einstein condensate occur in the brain, and that it might be the physical base of memory, although they have not been able to find a suitable mechanism to underpin such a hypothesis. Evidences of the existence of Bose-Einstein condensates in living tissues abound (Popp, F.A *Experientia*, Vol. 44, p.576-585; Inaba, H., *New Scientist*, May89, p.41; Rattermeyer, M and Popp, F. A. *Naturwissenschaften*, Vol.68, N°5, p.577.)

<sup>4</sup> This paradox ascribed to Max Delbrück (Delbrück, Max., (1978) *Mind from Matter?* American Scholar, 47. pp.339-53.) remained unsolved and was posed as follows: How come the same matter studied by Physics, when incorporated into a living organism, assumes an unexpected behavior, although not contradicting physical laws?

The appearance of “living” molecules in a planet marks the beginning of the most important evolutionary stage for the psyche of matter, for it is from the combination of these molecules that there appear living beings with individual material consciousness with even larger psychic masses.

Biologists have shown that all living organisms existing on Earth come from two types of molecules – aminoacids and nucleotides – which make up the fundamental building blocks of living beings. That is, the nucleotides and aminoacids are identical in all living beings, whether they are bacteria, mollusks or men. There are twenty different species of aminoacids and five of nucleotides.

In 1952, Stanley Miller and Harold Urey proved that aminoacids could be produced from inert chemical products present in the atmosphere and oceans in the first years of existence of the Earth. Later, in 1962, nucleotides were created in laboratory under similar conditions. Thus, it was proved that the molecular units making up the living beings could have formed during the Earth’s primitive history.

Therefore, we can imagine what happened from the moment said molecules appeared. The concentration of aminoacids and nucleotides in the oceans gradually increased. After a long period of time, when the amount of nucleotides was already large enough, they began to group themselves by mutual psychic attraction, forming the molecules that in the future will become DNA molecules.

When the molecular masses of these molecules became large enough, the distribution of elementary psyches in their consciousnesses took the most orderly possible form of phase condensate (Bose-Einstein condensate) and such consciousnesses became the *individual material consciousness*.

Since the psychic mass of the consciousnesses of these molecules is very large (as compared with the psychic mass of the atoms), the amount of self-accessible knowledge in such consciousnesses became considerable and, thus, they became apt to *instruct* the joining of aminoacids in the formation of the first proteins (origin of the *Genetic Code*). Consequently, the DNA’s capability to serve as guide for the joining of aminoacids in the formation of proteins is fundamentally a result of their psychism.

In the psychic of DNA molecules, the formation of proteins certainly had a definite objective: *the construction of cells*.

During the cellular construction, the most important function played by the consciousnesses of the DNA molecules may have been that of organizing the distribution of the new molecules incorporated to the system so that the consciousnesses of these molecules jointly formed with the consciousness of the system a Bose-Einstein condensate. In this manner, more knowledge would be available to the system and, after the cell is completed, the latter would also have an individual material consciousness.

Afterwards, under the action of psychic interaction, the cells began to group themselves according to different degrees of positive mutual affinity, in an organized manner so that the distribution of their consciousnesses would also form Bose-Einstein condensates. Hence, collective cell units began to appear with individual consciousnesses of larger psychic masses and, therefore, with access to more knowledge. With greater knowledge available, these groups of cells began to perform specialized functions to obtain food, assimilation, etc. That is when the first multi-celled beings appeared.

Upon forming the tissues, the cells gather structurally together in an organized manner. Thus, the tissues and, hence, the organs and the organisms themselves also possess individual material consciousnesses.

The existence of the material consciousness of the organisms is proved in a well-known experiment by Karl Lashley, a pioneer in neurophysiology.

Lashley initially taught guinea pigs to run through a maze, an ability they remember and keep in their memories in the same way as we acquire new skills. He then systematically removed small portions of the brain tissue of said guinea pigs. He thought that, if the guinea pigs still remembered how to run through the maze, the memory centers would still be intact.

Little by little he removed the brain mass; the guinea pigs, curiously enough, kept remembering how to run through the maze. Finally, with more than 90% of their cortex removed, the guinea pigs still kept remembering how to run through the maze. Well, as we have seen, the consciousness of an organism is formed by the concretion of all its cellular consciousnesses. Therefore, the removal of a portion of the organism cells does not make it disappear. Their cells, or better saying, the consciousnesses of their cells contribute to the formation of the consciousness of the organism just as the others, and it is exactly due to this fact that, even when we remove almost all of the guinea pigs' cortex, they were still able to remember from the memories of their individual material consciousnesses. In this manner, what Lashley's experiment proved was precisely the existence of individual material consciousnesses in the guinea pigs.

Another proof of the existence of the individual material consciousnesses in organisms is given by the *regeneration* phenomenon, so frequent in animals of simple structure: sponges, isolated coelenterates, worms of various groups, mollusks, echinoderms and tunicates. The arthropods regenerate their pods. Lizards may regenerate only their tail after autotomy. Some starfish may regenerate so easily that a simple detached arm may, for example, give origin to a wholly new animal.

The organization of the psychic parts in the composition of an organism's individual material consciousness is directly related to the organization of the material parts of the organism, as we have already seen. Thus, due to this interrelationship between body and consciousness, any disturbance of a material (physiological) nature in the body of the being will affect its individual material consciousness, and any psychic disturbance imposed upon its consciousness affects the physiology of its body.

When a consciousness is strongly affected to the extent of unmaking the Bose-Einstein's condensate, which gives it the status of individual consciousness, there also occurs the simultaneous disappearance of the knowledge made accessible by said condensation. Therefore, when a cell's consciousness no longer constitutes a Bose-Einstein condensate, there is also the simultaneous disappearance of the knowledge that *instructs and maintains* the cellular metabolism. Consequently, the cell no longer functions thus initiating its decomposition (molecular desegregation).

Similarly, when the consciousness of an animal (or vegetables) no longer constitutes a Bose-Einstein condensate, the knowledge that instructs and maintains its body functioning also disappears, and it dies. In this process, after the unmaking of the being's individual consciousness, there follows the unmaking of the individual consciousnesses of the organs; next will be the consciousnesses of their own cells which no longer exist. At the end there will remain the isolated psyches of the molecules and atoms. *Death, indeed, destroys nothing, neither what makes up matter nor what makes up psyche.*

As we have seen, all the information available in the consciousnesses of the beings is also accessible by the consciousnesses of their organs up to their molecules'. Thus, when an individual undergoes a certain experience, the information concerning it not only is recorded somewhere in this consciousness but also pervades all the individual consciousnesses that make up its total consciousness. Consequently, psychic disturbances imposed to a being reflect up to the level of their individual molecular consciousnesses, perhaps even structurally affecting said molecules, due to the interrelationship between body and consciousness already mentioned here.

Therefore, some modifications in the sequences of nucleotides of the DNA molecules can occur when the psychism of the organism in which the molecules are incorporated is sufficiently affected.

It is known that such modifications in the structure of DNA molecules may also occur as consequence of chemical products in the blood stream (as in the case of the mustard gas used in chemical warfare) or exposition to high-energy radiation.

Modifications in the sequences of nucleotides in DNA molecules are called mutations. Mutations, as we know, determine hereditary variations, which are the basis of Darwin's theory of evolution.

It is known that mutations of two types, "favorable" or "unfavorable", can occur. The former type enhances the individuals' possibility of survival, whereas the second reduces such possibility.

The theory of evolution is established as a consequence of individuals' efforts to survive in the environment where they live. This means that their descendants may become different from their ancestors. This is the mechanism that leads to frequent appearance of new species. Darwin believed that the mutation process was slow and gradual. Nevertheless, it is known today that this is not the general rule, for there are evidences of the appearance of new species in a relatively short period of time [12]. We also know that individual's characteristics are transmitted from parents to offsprings by means of genes and that the recombination of the parents' genes, when *genetic instructions* are transmitted, by such genes.

However, it was shown that the genetic instructions are basically associated with the psychism of DNA molecules. Consequently, *the genes transmit not only physiological but also psychic differences*.

Thus, as a consequence of genetic transmission, besides the great physiological difference between individuals of the same species, there is also a great psychic dissimilarity.

Such psychic dissimilarity associated with the progressive enhancement of the individual's psychic quantities may have given rise, in immemorial time, to a variety of individuals (most probably among anthropoid primates) which unconsciously established a positive mutual affinity with *primordial consciousnesses* that must have been attracted to Earth. Thus, the relationship established among them and the consciousnesses of said individuals is enhanced.

In the course of evolutionary transformation, there must have been a time when the fetuses of said variety already presented such a high degree of mutual affinity with the primordial consciousnesses attracted to Earth that, during pregnancy, the incorporation of primordial consciousnesses may have occurred in said fetuses.

In spite of absolute psychic mass of the fetus's material consciousness be much smaller than that of the mother's consciousness, the degree of positive mutual affinity between the fetus's consciousness and the primordial consciousness that is going to be incorporated is much greater than that between the latter and the mother's, which makes the psychic attraction between the fetus's consciousness and primordial consciousness much stronger than the attraction between the latter and the mother's. That is the reason why primordial consciousness incorporates the fetus. Thus, when these new individuals are born, they bring with them their individual material consciousness, an individualized consciousness of the Supreme Consciousness. In this way were the first *hominids* born.

Having been directly individualized from Supreme Consciousness, the primordial consciousnesses are perfect individualities and not phase condensates as the consciousnesses of the matter. In this manner, they do not dissociate after the death of those that incorporated them. Afterwards, upon the action of psychic attraction, they are again able to incorporate into other fetuses to proceed on their evolution.

These consciousnesses (hereinafter called *human consciousness*) constitutes individualities and, therefore, the larger their psychic mass the more available knowledge they will have and, consequently, greater ability to evolve.

Just as the human race evolves biologically, human consciousnesses have also been evolving. When they are incorporated, the difficulties of the material world provide them with more and better opportunities to acquire psychic mass (later on we will see how said consciousnesses may gain or lose psychic mass). That is why they need to perform successive reincorporations. Each reincorporation arises as a new opportunity for said consciousnesses to increase their psychic mass and thus evolve.

The belief in the reincarnation is millenary and well known, although it has not yet been scientifically recognized, due to its *antecedent probability* being very small. In other words, there is small amount of data contributing to its confirmation. This, however, does not mean that the phenomenon is not true, but only that there is the need for a considerable amount of experiments to establish a significant degree of antecedent probability.

The rational acceptance of reincarnation entails deep modifications in the general philosophy of the human being. For instance, it frees him from negative feelings, such as nationalistic or racial prejudices and other response patterns based on the naive conception that we are simply what we appear to be.

Darwin's lucid perception upon affirming that not only the individual's corporeal qualities but also his psychic qualities tend to improve made implicit in his "natural selection" one of the most important rules of evolution: *the psychic selection*, which basically consists in the *survival of the most apt consciousnesses*. Psychic aptitude means, in the case of human consciousnesses, mental quality, i.e., *quality of thinking*.

In this context, the human consciousnesses are equivalent to the called *Spirits*, mentioned in the Kardecist literature [13], where the reincarnation was strongly considered.

## 5. The Spirits

### *Origin and Nature of the Spirits*

As we have already seen, the origin of the spirits is related to the natural desire of the Supreme Consciousness to procreate, that is, of generating individual consciousnesses in itself so that they could evolve and express the same creative attributes pertinent to Her. In this way, the nature of Spirits is the same of the Supreme Consciousness.

### *Form and Ubiquity of the Spirits*

By definition the consciousnesses, the thought, etc., are psychic bodies, i.e., *psychic energy* locally concentrated. In the material world, we can not distinguish the *form* of thoughts probably because the density of concentrated psychic energy is so low that would be equivalent to a *fluid* with a density much lower than the densities of gases. We know that we can only see a body if the light emitted by it can be detected by our eyes. The solids and liquids generally reflect light well and this makes them visible. The gases, on the contrary, are only visible in a state of high density, as in the case of the clouds. In a state of low density, like the wind, become invisible, because, practically, do not reflect the rays of light. In the case of thoughts, whose density would be much lower than the density of the gases, we also cannot distinguish its shape. The same is true in the case of Spirits. Thus, it becomes very difficult for us to see the Spirits. However, as the concentration of energy in spirits is greater than the thoughts it is possible that we can see traces of its forms in certain circumstances. This would then

correspond to the vision of figures, flashes, etc. Thus, the perfect vision of the forms of the spirits will probably only be possible for an observer in the Spiritual World.

As concerns the ubiquity of the Spirits, it is necessary to use the Quantum Physics in order to understand it. We start from the *Uncertainty Principle*, under the form obtained in 1927 by Werner Heisenberg, i.e.,

$$\Delta x \Delta p \geq h \quad (10)$$

This expression shows that the product of the uncertainty  $\Delta x$  in the position of a particle in a certain instant by the uncertainty  $\Delta p$  in its *momentum* is equal or greater than the *Planck's constant*  $h$ . We cannot measure simultaneously both, position and *momentum*, with perfect accuracy. If we reduce  $\Delta p$ , then  $\Delta x$  will be increased and vice-versa. Such uncertainties are not in our appliances, but in Nature.

A mathematical approach more accurate than the one proposed by Heisenberg presents to the uncertainty principle the following relationship:

$$\Delta x \Delta p \geq \frac{h}{2\pi} \quad (11)$$

When we want to correlate the uncertainty  $\Delta E$  in the energy with the uncertainty  $\Delta t$  in the time interval it is customary to write the Uncertainty Principle in the following form:

$$\Delta E \Delta t \approx \hbar \quad (12)$$

where  $\hbar = h/2\pi$ .

According to this expression, an event in which an amount of energy  $\Delta E$  is not conserved is not prohibited, provided that the duration of the event does not exceed  $\Delta t$ . This means that it can occur variations of energy in a system, that *even in principle are impossible to determine them*. The emission of a meson by a nucleus that does not change its mass - clear violation of the principle of conservation of energy - can occur if the nucleon reabsorb the meson (or similar) in a time interval less than  $\hbar/\Delta E = \hbar/m_{\pi}c^2$ , ( $m_{\pi}$  is the mass of the meson).

Therefore, it can also occur that a material particle moves temporarily to a certain position without actually leaving your starting position. In this case, it is said that the particle made a *Virtual Transition* to a certain position.

The designation virtual must not lead the reader to imagine that the transition was not made. It is effectively carried out: it is real. But, according to the uncertainty principle, it is impossible to be observed. This is a limitation imposed by Nature.

However, although we cannot observe the virtual transitions, their occurrence can often be detected by the produced effects.

The *psychic particles* can also perform virtual transitions, since the uncertainty principle also applies to them.

This means, therefore, that *quanta* of human consciences (from the minds' conscious, subconscious and unconscious) can perform "temporary exits" *but without leaving them effectively*.

These transitions correspond to virtual transitions of the own minds where the *quanta* are originated, since these, when individualized, form Bose-Einstein condensates with the mind where they are originated, and therefore, share all the knowledge and attributes relevant to it.

During pseudo-medical deaths, projections, etc., people report later that they "saw" themselves out of the body, a clear indication of virtual transitions originating from the *conscious* and *subconscious*. In dreams, besides such transitions, there are also indications of transitions from the *unconscious*.

According to Feynman's Quantum Theory of Electromagnetic Interaction [14], no energy is spent in virtual transitions, which can occur *around at any distance*. Moreover, as is easily concluded from the uncertainty principle, one single quantum can perform several virtual

transitions simultaneously. It all depends on how quickly it makes the transitions. Therefore, through this process, the *quanta* of human consciousnesses or *it all* may go to several places *simultaneously*. We conclude, therefore, that *a spirit can be in several places at a time*. But of course this is not a division of Spirit, but himself present simultaneously in several places.

### *Incarnation of Spirits*

The great dissimilarity associated with the progressive enhancement of the individual's psychic quantities may have given rise, in immemorial time, to a variety of individuals (most probably among anthropoid primates) which unconsciously established a positive mutual affinity with *Primordial Spirits*, previously mentioned.

As this affinity was developed with the psychic enhancement, it is expected that natural selection has made it much higher in the offspring of this variety. Thus, due to the psychic interaction, several Primordial Spirits must have been attracted to the Earth. With this, the relationship established among them and the material consciousnesses of said individuals was intensified.

In the course of evolutionary transformation, there was a time when the fetuses of said variety already presented such a high degree of mutual affinity with the primordial consciousnesses attracted to the Earth that, during pregnancy, the incorporation of Primordial Spirits may have occurred in said fetuses<sup>5</sup>.

This phenomenon should not have occurred only on Earth, may also have occurred in the same way on other planets with evolutionary conditions similar to Earth's. The belief that this phenomenon occurred only in the *incarnation* of Spirits on Earth would question the wisdom of God, favoring only the Earth and excluding thousands of other worlds.

As we have already seen, these Spirits constitute perfect individualities and, therefore, as greater their psychic energy greater auto-knowledge accessible and, consequently, they will have greater opportunities to evolve.

Thus, also the Spirits evolve as the human race evolved biologically.

### *Return to Corporal Life*

Just as the consciousnesses of the children have a high degree of positive mutual affinity with the consciousnesses of their parents, and among themselves (*principle of familiar formation*), the embryo cells, by having originated from cellular duplication, have a high degree of positive mutual affinity. The embryo cells result, as we know, from the cellular duplication of a single cell containing the paternal and maternal genes and, hence, have a high degree of positive mutual affinity.

Thus, under the action of psychic interaction the cells of the internal cellular mass start gathering into small groups, according to the different degrees of mutual affinity.

When there is a positive mutual affinity between two consciousnesses there occurs the *intertwining* between their wave functions, and a *Phase Relationship* is established among them. Consequently, since the degree of positive mutual affinity among the embryo cells is high, also the relationship among them will be intense, and it is exactly this what enables the construction of the organs of the future child. In other words, when a cell is attracted by certain group in the embryo, it is through the cell-group relationship that determines where the cell is to aggregate to

---

<sup>5</sup> When incarnated, the Spirit is commonly called of *Soul*. However, considering that while incarnated the Spirit form a Bose-Einstein condensate with the material consciousness of the body, we can define the Soul as *the individual consciousness of being*, i.e., a Bose-Einstein condensate containing the incarnated *Spirit* and *material consciousness* of the body.

the group. In this manner, each cell finds its correct place in the embryo; that is why observers frequently say that, "*the cells appear to know where to go*", when experimentally observed.

The cells of the internal cellular mass are capable of originating any organ, and are hence called *totipotents*; thus, the organs begin to appear. In the endoderm, there appear the urinary organs, the respiratory system, and part of the digestive system; in the mesoderm are formed the muscles, bones, cartilages, blood, vessels, heart, kidneys; in the ectoderm there appear the skin, the nervous system, etc.

Thus, it is the mutual affinity among the consciousnesses of the cells that determines the formation of the body organs and keeps their own physical integrity. For this reason, every body rejects cells from other bodies, unless the latter have positive mutual affinity with their own cells. The higher the degree of cellular positive mutual affinity, the faster the integration of the transplanted cells and, therefore, the less problematic the transplant. In the case of cells from identical twins, this integration takes place practically with no problems, since said degree of mutual affinity is very high.

In eight weeks of life, all organs are practically formed in the embryo. From there on, it begins to be called *fetus*.

The embryo's material individual consciousness is formed by the consciousnesses of its cells united in a Bose-Einstein condensate. As more cells become incorporated into the embryo, its material consciousness acquires more psychic mass. This means that this type of consciousness *will be greater in the fetus than in the embryo* and even greater in the child.

Thus, the psychic mass of the mother-fetus consciousness progressively increases during pregnancy, consequently increasing the psychic attraction between this consciousness and that new one about to incorporate. In normal pregnancies, this psychic attraction also increases due to the habitual increase in the degree of positive mutual affinity between said consciousnesses.

Since the embryo's consciousness has greater degree of positive mutual affinity with the consciousness that is going to incorporate, then the embryo's consciousness becomes *the center of psychic attraction to where the human consciousness (Spirit) destined to the fetus will go*.

When the psychic attraction becomes intense enough, human consciousness penetrates the *mother consciousness*, forming with it a new Bose-Einstein condensate. From that instant on, the fetus begins to have two consciousnesses: *the individual material one and the human consciousness attracted to it*.

However, this should only occur after *eight weeks*, when all organs are practically formed in the embryo, and it is called *fetus*. This is a critical period in which *the imperfections of matter* can cause fetal death. Thus, the Spirit waits to complete formation of the fetus. If the fetus can not be structured conveniently, it will naturally be aborted and the Spirit will look for another body to reincarnate.

We conclude, therefore, that the initial eight weeks are a period imposed by Nature herself to finish the building of the fetus and test whether it will be able to be used by the Spirit that want to incarnate. Thus, in this period of "construction" of the fetus, both the Spirit and the mother, based on free will, also have the freedom to give up the process. In this case, breaks easily the Bose-Einstein condensate, and the Spirit and both the mother can restart on other basis, making sure they have fully exercised their rights and have not harmed or caused harm to either party involved in the process.

However, if the fetus is able, the process to continue the psychic attraction between material consciousness of the fetus and the Spirit that want to incarnate, accepted by the mother and by said Spirit, will progressively increase. In this way, with the psychic attraction, this human consciousness tends to continue, being progressively *compressed* until effectively incorporating the fetus. *When this takes place, it will be ready to be born*.

It is probably due to this *psychic compression* process that the incorporated consciousness suffers amnesia of its preceding history. Upon *death*, after the psychic decompression that arises from the definitive disincorporation of the consciousness, *the preceding memory must return*.

### *Evolutionary Degree and Fate of the Spirit*

We have already seen that, when the *gravitational mass*,  $M_g$ , of a body is smaller than  $-0.159M_i$  or larger than  $+0.159M_i$  it is in the *Material World*. However, if its gravitational mass is reduced to the range between  $-0.159M_i < M_g < +0.159M_i$ , it performs a transition to the *Psychic World* or *Spiritual World*. [1] When this occurs, its *real gravitational mass*,  $m_{g(Real)}$ , is *totally converted into imaginary gravitational mass*,  $m_{g(imaginaria)}$ , due to the *Principle of Conservation of Energy*.

On the other hand, it was shown that the *psychic mass*,  $m_\Psi$ , is equal to the *imaginary gravitational mass*[1], i.e.,

$$m_\Psi = m_{g(imaginaria)} \quad (13)$$

Thus, when a body perform a transition to the *Psychic World*, its *real gravitational mass*  $m_{g(Real)}$ , is *totally converted into psychic mass*.

$$m_\Psi = m_{g(imaginaria)} \equiv m_{g(Real)}$$

Since the mass is quantized, the body performs a transition to a *quantum* level correspondent to its *psychic mass* (See Fig.1). Thus, the body goes to a region corresponding to the gravitational mass that it acquired in the *Material World*.

According to the new concepts of spacecraft and aerospace flight shown in the book *Física dos UFOs*<sup>6</sup>, the called *Gravitational Spacecrafts* must use the *Psychic Universe* in order to viabilize trips that would require much time in the *Material Universe*.

As the mentioned spacecrafts just perform transition to the *Psychic Universe* if and only if its gravitational masses are reduced to the range  $-0.159M_i < M_g < +0.159M_i$ , then, with *negative* gravitational mass in the range  $-0.159M_i < M_g$ , they perform the transition, and their gravitational masses would be transformed into *negative* gravitational mass. Thus, they will enter the *Psychic Universe* by the zone energetically located in the range  $-\infty < M_\Psi < 0$  (See Fig. 1). In the case of the gravitational mass of the spacecraft be reduced to the *positive* range, i.e.,  $0 < M_g < +0.159M_i$ , the spacecraft will enter the *Psychic Universe* by zone of *positive* energy of the psychic spectrum.

Only after the discovery of the correlation between the gravitational mass and the inertial mass could the finding of *negative* gravitational mass be achieved, making it possible to find ways to obtain it. It is clear, then, that the common material in the *Material Universe* is the existence of bodies with *positive* gravitational mass. Similarly, in the *Psychic Universe*, the common is to find psychic bodies with *positive* psychic mass. Thus, to find the *World of Spirits*, a *Gravitational Spacecraft* must enter the *Psychic Universe* with *positive* psychic mass.

When a spirit disincarnates, he does not makes a transition to the *Spiritual Universe* because, due to its own nature, *the Spirit is already in the Spiritual Universe*. Thus, the Spirit just *turn off* the material body which they lived. As it leaves the *Material World* with a given positive psychic mass<sup>7</sup>,  $m_\Psi$  – acquired during its evolution, and during its recent reincarnation in the *Material World* – *it should proceed to the region of the World of Spirits corresponding to its psychic mass*. Thus, as the evolutionary degree of each Spirit is defined by the amount of

<sup>6</sup> See at [www.frandaquino.org](http://www.frandaquino.org)

<sup>7</sup> It is fact that the presence of *negative* psychic energy in the Spirits would cause a decrease in its total psychic energy, which would imply *involution* (since the addition of *positive* psychic energy implies in evolution) and, as we have seen, the Spirits do not involute.

psychic mass contained in the Spirit<sup>8</sup>, then the Spirits proceed precisely to the regions that correspond to their evolutionary degrees, and there, brought together by mutual affinity, they continue the evolutionary process and wait for the time of new reincarnation. Driven by the need for progress, this is therefore the destiny of Spirits.

Thus, in the World of Spirit there is a natural selection that brings together Spirits with the same level of evolution, and that does not allow the less evolved access to more evolved regions. The most evolved Spirits, however, can transit through the lower regions, making the already mentioned "virtual" transitions. In this way, they may intervene with less evolved regions.

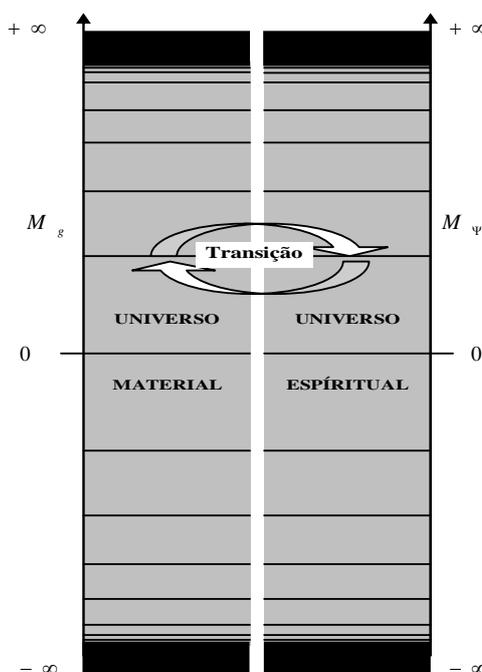


Fig. 1 – When the *gravitational mass*,  $M_g$ , of a body is in the range  $-0.159M_i > M_g > +0.159 M_i$  it is in the *Material Universe*. However, If  $M_g$  is reduced to the range  $-0.159M_i < M_g < +0.159 M_i$ , then it makes a transition to the *Psychic Universe* (or Spiritual) with its *gravitational mass* converted to in *psychic mass*. Since the mass is *quantized*, the body performs a transition to a quantum level correspondent to its psychic mass. Thus, it follows to a region correspondent to the gravitational mass, which it acquired in the Material Universe.

### *Life in the World of Spirits*

By doing the good, spirits acquire more psychic mass, and thus, more latent powers are awakened, which facilitates their achievements, and makes them happier<sup>9</sup>. But they should not occupy themselves only with their personal improvement, since life in the Spirit World, such as life in the Material World, is a continuous occupation. We can also conclude from the above

<sup>8</sup> As already seen, the Spirits were individualized in the Supreme Consciousness, and therefore brought with them, in a latent state, the same attributes pertinent to Her. With the progressive evolution of the Spirit, these attributes are being awakened, so that the degree of evolution of a Spirit is directly related to the quantity of attributes it aroused. On the other hand, the number of attributes in a Spirit is directly correlated to the amount of *mass psychic* of the Spirit. Thus, more psychic mass the Spirit has greater the amount of attributes awakened and, therefore, more evolved is the Spirit.

<sup>9</sup>The happiness of the good Spirits certainly consists in *knowing* more and more; not having hate, jealousy, envy, or any of the passions that make the misery of men. They don't experience needs or suffering, or the anxieties of material life, and this in itself is synonymous of great happiness.

that even the spirits of the highest order, in having nothing more to improve, do not cease their activities, once the eternal idleness would also be an eternal punishment.

We have seen that the *realization* of what we want requires an expenditure of psychic energy proportional to the nature of desire. In other words, in order to have what we want realized through the collapse of its wave function, it is necessary an expenditure of psychic energy sufficient for its accomplishment. As the density of material bodies is much greater than the density of psychic bodies, the realization of our desires in the Material Universe usually requires much more the psychic energy than in the Psychic Universe. Thus, life in the World of Spirit becomes much easier and more enjoyable than in the Material World. But the difficulties of the Material World are what allow the Spirits to progress in their evolution, and that might have been the main reason for the creation of the Material Universe.

The possibility of transition to the Psychic Universe increased the likelihood of close encounters with beings from other planets in our ordinary Universe, and also with the people who live in planets of the Psychic Universe, since Gravitational Spacecraft trips can also be carried over in this Universe, as already shown. The characteristics associated to the subtle psychic mass indicate that the life of these beings should not be *finite* as the lives of the humans. This makes us think that maybe life in the Psychic Universe be the *real* life while our brief life in this Universe has only specific goals such as, for example, a learning period.

The Psychic Universe, by its very nature, it is constituted of photons, atoms and molecules *psychics*. This means that all types of photons, atoms and molecules that exist here may have its corresponding counterparts in the Psychic Universe. Therefore, all we have here can exist there with a similar form. However, considering the characteristics associated to the subtle psychic mass, we can conclude that life here may be an imperfect copy of the life there.

### *Time in the World of Spirits*

We have already seen that the *Real Universe*, where we live, is contained in the *Psychic Universe* (Imaginary Universe), so the *real space-time* that corresponds to the Real Universe is within the Imaginary space-time, which forms the *Psychic Universe*, where the Spirits live. By definition, in the imaginary space-time both the *space* coordinates and the *time* coordinate are, obviously, imaginary. This means that *the time in the Universe of the Spirits (imaginary time) is different from the real time of our Universe*.

Only recently the concept of imaginary time was considered by physicists. Difficult to understand, but deemed essential to connect the Statistical Mechanics to Quantum Mechanics, the concept of imaginary time also became instrumental in Quantum Cosmology, where it was introduced in order to eliminate singularities (points where the curvature of space-time becomes infinite), which occur in the real time (See Hartle-Hawking state [15]). Twenty-two years ago, Hawking popularized the concept of imaginary time in his book: A Brief History of Time [16].

The imaginary time is not imaginary in the sense that it does not exist. Nor is it a mathematical artifice. No, it really exists, however, it has different characteristics of the time which we are used to.

The existence of the imaginary time is mathematically sustained by a mechanism called *Wick Rotation*<sup>10</sup>, which transform the metrics of the *Minkowski* space-time

$$ds^2 = -(dt^2) + dx^2 + dy^2 + dz^2 \quad (14)$$

into the metrics of the *Euclidean space-time*

$$ds^2 = d\tau^2 + dx^2 + dy^2 + dz^2 \quad (15)$$

where  $\tau = it$ ;  $i = \sqrt{-1}$  is called *imaginary unit*, which defines the *imaginary numbers* in the form  $z = a + bi$ , where  $a$  and  $b$  are real numbers, called respectively, the *real* part of “ $z$ ” and the *imaginary* part of “ $z$ ”.

---

<sup>10</sup> It is the called *rotation* because when we multiply an imaginary number by  $i$  the result, on the Cartesian plane, is equivalent to a rotation of  $90^\circ$  of the vector that represents the number. Assim,  $-dt^2 = -dt \cdot dt = i^2 dt \cdot dt = i(i dt) \cdot dt = d\tau^2$ .

From the definition of complex numbers follows that they can be interpreted as points in the Cartesian plane (where conventionally we mark on the  $x$ -axis the *real part* and on the  $y$ -axis the *imaginary part* of a imaginary number “ $z$ ”) or, as *vectors*  $\vec{OZ}$  whose origin “ $O$ ” is at the origin of the Cartesian grid, and the point “ $Z$ ” with the coordinates  $(a, b)$ . (See Fig. 2).

Thus, imaginary numbers can be conceived as a new type of number *perpendicular* to the real numbers. This leads to the possibility of expressing mathematically *imaginary time* in a direction *perpendicular* to the common real time. In this model, the imaginary time is a function of real time and vice versa (See Fig.3). Thus, the imaginary time appears as a new dimension that makes a right angles to real time, and thereby, as Hawking showed [17], *it has much more possibilities than the real time*, which always flows from past to future, and only may have a beginning and an end.

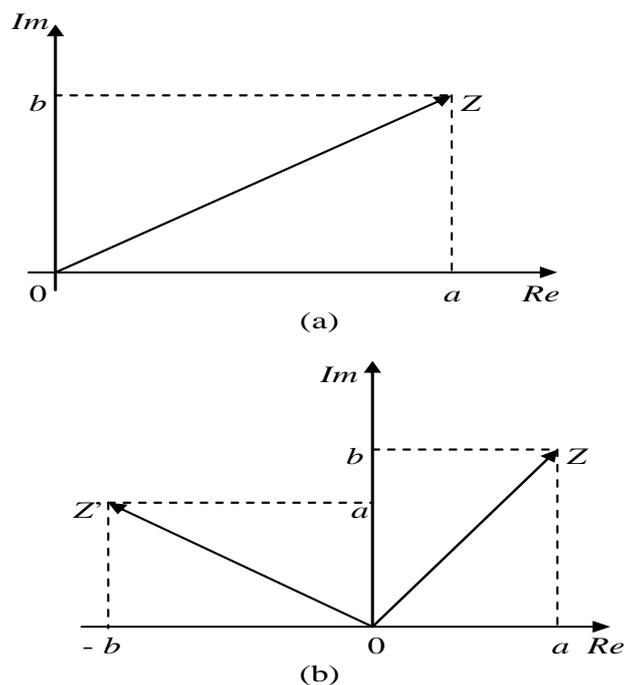


Fig. 2 – (a) *The Imaginary Plane* (or Argand-Gauss Plane) is a way to visualize the space of imaginary numbers. Can be understood as a modified Cartesian plane, where the *real part* is represented on the  $x$ -axis and the *imaginary part* on the  $y$ -axis. The  $x$ -axis is called real axis while the  $y$ -axis is called imaginary axis. (b) When we multiply a imaginary number  $z = a+bi$  by  $i$  ( $iz = ai - b = z'$ ) the result on the Cartesian plane is equivalent to a *rotation* of  $90^\circ$  of the vector  $OZ$  that represents the number.

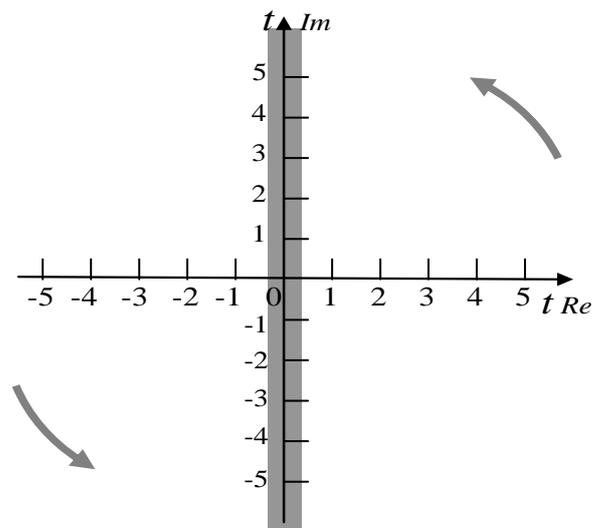


Fig.3 – Mathematically, it is possible to express the *imaginary time* in a direction *perpendicular* to the common real time. In this model, the imaginary time is a function of real time and vice versa.

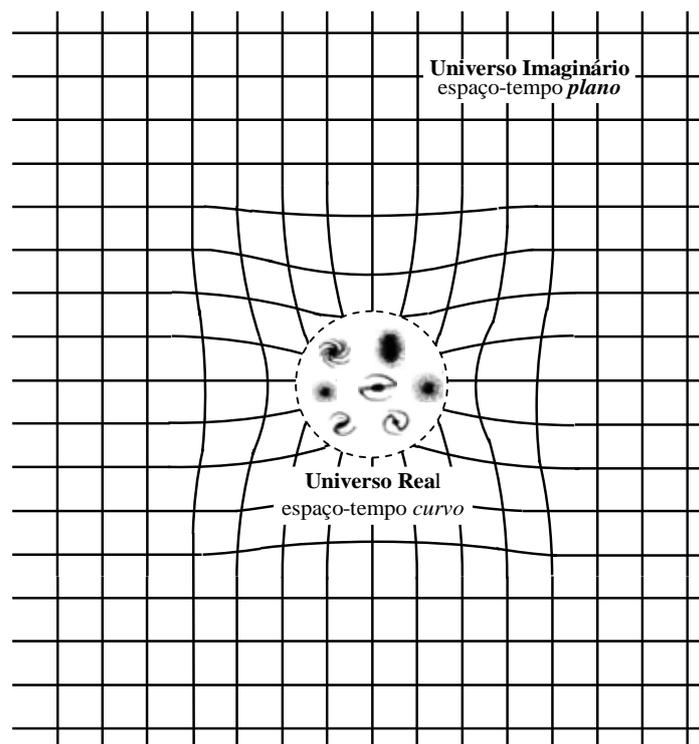


Fig. 4 – *The Model of the Imaginary Universe (or Psychic Universe) containing the Real Universe.* In the Imaginary Universe the space-time is *flat* (*Euclidean* metric), whereas in the Real Universe space-time is *curved* due to the presence of matter. In this model, the boundaries of the Real Universe confuse itself with the Imaginary Universe that is unlimited.

Imaginary time is measured in imaginary units (e.g.,  $2i$  seconds instead of 2 seconds). This imaginary unit of time may seem strange to us, such as our unit of real time measurement seems to the spirits, accustomed in their world measuring time in imaginary units. It all depends, of course, on the Universe where we are.

Based on the very definition of imaginary time, it is easy to see that we can interpret it as a vector  $\vec{OZ}$ . Thus, being a vector, the imaginary time need not necessarily be always oriented in the same direction as the real time. It can freely change direction and intensity. This means that an observer in imaginary time can move in any direction for the *future* or *past*, such as we can move in any direction in space. This unique feature creates for us – accustomed to the flow of time always in the same direction – a horizon of events full of possibilities, hard to imagine because of the limitations imposed upon our consciousnesses by the Material Universe.

The existence of imaginary time derives from the very existence of the *imaginary space-time* contained in the Psychic Universe. As already shown, the speed of propagation of interactions in the Psychic Universe is *infinite*, which means that *the metrics of space-imaginary time is Euclidean* (or flat), while the metrics of the real universe is *non-Euclidean* (or curve). Since the Psychic Universe contains the Real Universe, we can conclude that the limits of the Real Universe mix itself up with the Psychic Universe that is unlimited (See Fig. 4).

The fact that the Psychic Universe have no limits implies that it has no *singularities* or boundaries in the imaginary time direction. With this condition, there is no beginning or end of the imaginary time.

## Conclusion

Both the traditional physicists and most people recognize that there are phenomena where matter does not act alone, i.e., which involves also what we call psychism (consciousness, thought). These phenomena had hitherto been relegated to the professional affair of experts other than the traditional physicists. However, in recent decades, Quantum Physics has shown us that some physical laws are stretched beyond the Material World, revealing the existence of the Spiritual World. Thus, the Spiritual World arises not as a supernatural world<sup>11</sup>, but as something as *real* as our Material World. On the other hand, this knowledge paved the way for Physics to study psychic phenomena using the same criteria adopted for the study of physical phenomena. In other words, it was evident that psychic phenomena could also be described by the laws of Physics. This unification is the basis for the *Grand Unification* of Science and Religion. Thereafter, both could no longer follow on separately. It was clear that Science could more accurately describe the truth postulated by Religion.

In this context, the Religion - absorbed by Science, must leave the scene just as the purely philosophical Cosmology gave way, in the past century, to Quantum Cosmology, when Quantum Physics discovered the laws that accurately describe the structures of the Universe.

The unification of Science and Religion is highly relevant because it will eliminate the spread of religious beliefs that have caused so much harm to Humanity in recent millennia. Now, the truth postulated by Religion will be transmitted by Science in schools and universities, and the human beings will understand it and use it, such as they use and understand, for example, the electric current, knowing that it can cause harm and also benefits for its users.

It would be too much presumptuous to believe that, due to the simple revelation of this new knowledge, the human nature could change suddenly. It will certainly take several decades for a complete assimilation of such truth.

It will then be taught to people from early stages of learning, the fundamental importance of the *quality* of our thoughts, since it is from them that the psychic interaction is defined and,

---

<sup>11</sup> In the eyes of the general public, all phenomena of unknown cause become readily supernatural, wonderful and miraculous: the cause, once known, shows that the phenomenon, for more extraordinary it may seem, is nothing but a consequence of one or more natural laws. It is in this way that the set of supernatural facts is reduced with the Science progress.

consequently, the extraordinary relationship that is established among the human consciousnesses, the Universe and God.

Mankind then will begin to develop its psychic possibilities starting from the regular training at school.

There will come a time when, on Earth, the good will prevail over evil. The good spirits incarnated on Earth will become more numerous and, by the law of Psychic Interaction and Mutual Affinity, they will attract more and more the good spirits to Earth, warding off evil Spirits. The great transformation of Humanity then will be made by the progressive incarnation of better Spirits, which will give origin, on Earth, to a generation much more evolved than the current one.

## References

- [1] DeAquino, F. (2010) *Mathematical Foundations of the Relativistic Theory of Quantum Gravity*, Pacific Journal of Science and Technology, **11**(1), pp.173-232.
- [2] Ruyer, R. (1976) *La Gnose de Princeton*, Fayard.
- [3] Dunne, J. W (1934) *An Experiment with Time*, 3<sup>a</sup> Ed. Faber, London
- [4] De Aquino, F. (2010) *Physical Foundations of Quantum Psychology*, Bulletin of Pure and Applied Science, Vol.29D, Number 2, Section D, pp.105-130.
- [5] Bohm, D. (1951) *Quantum Theory*, Prentice-Hall, N.Y, p.415.
- [6] D'Espagnat, B. *The Question of Quantum Reality*, Scientific American, **241**,128.
- [7] Teller, P. *Relational Holism and Quantum Mechanics*, British Journal for the Philosophy of Science, **37**, 71-81.
- [8] Winger, K. (1967) *Symmetries And Reflections*, Blooming, Ind., Indiana University Press.
- [9] Young, A.M. (1976) *The Geometry of Meaning*, Delacorte Press, N.Y;  
Young, A.M. *The Reflexive Universe: Evolution of Consciousness*, Delacorte Press, N.Y.
- [10] Herbert, N. (1979) *Mind Science: A Physics of Consciousness Primer*, Boulder Creek, Cal: C -Life Institute.
- [11] Bohm, D. (1980) *A New Theory of Relation of Mind and Matter*, The Journal of the American Society of Psychical Research, Vol. 80, N° 2, p.129.
- [12] Grant, P.R., and Grant, B.R. (1995). *Predicting microevolutionary responses to directional selection on heritable variation. Evolution* **49**:241-251.
- [13] Kardec, A. (1954) *Le Livre des Esprits*, Édition de L'U.S.K.B, Paris.
- [14] Feynman, R. (1950) *Mathematical Formulation of the Quantum Theory of Electromagnetic Interaction*, Phys. Rev. **80**, 440.
- [15] Hartle, J. and Hawking, S. (1983). "Wave function of the Universe". *Physical Review D* **28**: 2960
- [16] Hawking, S. (1988) *A Brief History of Time*, Bantam Books, ISBN 0-553-380016.8.
- [17] Hawking, S. (2001) *The Universe in a Nutshell*, United States & Canada: Bantam Books. pp. 58–61, 63, 82–85, 90–94, 99, 196. ISBN 055380202X.