Quantum Reversal of Soul Energy

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In the last decades, the existence of the Soul has been seriously considered by Quantum Physics. It has been frequently described as a body of unknown *energy* coupled to human body by means of a mutual interaction. The Quantum Physics shows that energy is *quantized*, i.e., it has discrete values that are defined as energy levels. Thus, along the life of a person, the energy of its soul is characterized by several quantum levels of energy. Here, we show by means of application of specific electromagnetic radiations on the human body, that it is possible to revert the energy of the soul to previous energy levels. This process can have several therapeutic applications.

1. Introduction

Since long the Soul has remained an element of strongly consideration by Religion. Some authors claim that Religion is the science of the Soul [1]. Others claim that Soul and Religion are related to evolution. Sir Julian Huxley, a leading evolutionary biologist, the first Director-General of UNESCO and signatory to the Humanist Manifesto II, wrote: "*Human Soul and Religion are just the product of evolution*" [2]. This show how important the Soul is for the Religion. Philosophy also realizes the importance of the Soul. Plato, drawing on the words of his teacher Socrates, considered the Soul the essence of a person, being that which decides how we behave. As bodies die, the Soul is continually reborn in subsequent bodies.

Nowadays, Quantum Physics and other branches of Science are seriously considering the existence of the Soul.

It has been frequently described as a body of unknown *energy* coupled to human body by means of a mutual interaction. This type of energy from the viewpoint of Physics has been considered as *Imaginary* Energy. The term imaginary are borrowed from Mathematics (real and imaginary numbers) [3].

Quantum Physics shows that *energy* is *quantized*, i.e., that it has discrete values that are defined as discrete energy levels that correspond to all positive integer values of the *quantum number* n, $(n = 1,2,3,...)$ [4]. Thus, along the life of a person, the energy of its Soul is characterized by several quantum levels of energy. Here, we show that, by means of application of specific electromagnetic radiations on the human body (its Soul), it is possible to revert the energy of the Soul to previous energy levels. This process can have several therapeutic applications.

2. Theory

From the quantization of gravity it follows that the *imaginary* gravitational mass $m_{g\,(im)}$ and the *imaginary* inertial mass $m_{i0\,(im)}$ are correlated by means of the following factor [5]:

$$\chi = \frac{m_{g(im)}}{m_{i0(im)}} = \left\{ 1 - 2\left[\sqrt{1 + \left(\frac{\Delta p_{(im)}}{m_{i0(im)}c} \right)^2} - 1 \right] \right\} \quad (1)$$

where $m_{i0(im)} = -\frac{2}{\sqrt{3}} m_{i0} i$ is the *imaginary* inertial mass at rest of the particle and $\Delta p_{(im)} = U_{(im)} n_r / c = (Ui) n_r / c$ is the variation in the particle's *imaginary* kinetic momentum; c is the speed of light. Thus, Eq. (1) can be rewritten as follows

$$\chi = \frac{m_{g(im)}}{m_{i0(im)}} = \left\{ 1 - 2\left[\sqrt{1 + \frac{3}{4}\left(\frac{Un_r}{m_{i0}c^2}\right)^2} - 1\right]\right\} \quad (2)$$

When Δp is produced by the absorption of a photon with wavelength λ, i.e., $U = hf$, Eq. (2) becomes

$$\chi = \frac{m_{g(im)}}{m_{i0(im)}} = \left\{ 1 - 2\left[\sqrt{1 + \frac{3}{4}\left(\frac{\lambda_0}{\lambda_{mod}}\right)^2} - 1\right]\right\} \quad (3)$$

where $\lambda_0 = h/m_{i0}c$ is the *De Broglie wavelength* for the particle with *rest* inertial mass (real) m_{i0} and $\lambda_{mod} = \lambda/n_r$.

From Electrodynamics we know that when an electromagnetic wave with frequency f and velocity c incides on a material with relative permittivity ε_r, relative magnetic permeability μ_r and electrical conductivity σ, its *velocity is reduced* to $v = c/n_r$ where n_r is the index of refraction of the material, given by [6]

$$n_r = \frac{c}{v} = \sqrt{\frac{\varepsilon_r \mu_r}{2}\left(\sqrt{1 + (\sigma/\omega\varepsilon)^2} + 1\right)} \quad (4)$$

If $\sigma \gg \omega\varepsilon$, $\omega = 2\pi f$, Eq. (4) reduces to

$$n_r = \sqrt{\frac{\mu_r \sigma}{4\pi\varepsilon_0 f}} \quad (5)$$

Thus, the wavelength of the incident radiation (See Fig. 1) becomes

$$\lambda_{mod} = \frac{v}{f} = \frac{c/f}{n_r} = \frac{\lambda}{n_r} = \sqrt{\frac{4\pi}{\mu f \sigma}} \quad (6)$$
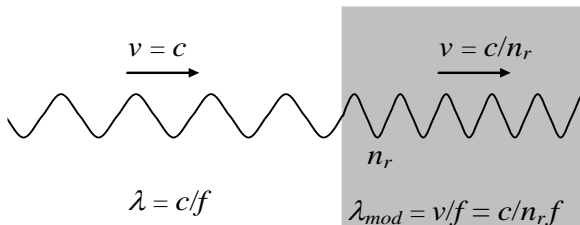

$$v = c \qquad v = c/n_r$$

$$n_r$$

$$\lambda = c/f \qquad \lambda_{mod} = v/f = c/n_r f$$

Fig. 1 – *Modified Electromagnetic Wave.* The wavelength of the electromagnetic wave can be strongly reduced, but its frequency remains the same.

If an *imaginary* lamina with thickness equal to ξ contains n *imaginary molecules*/m³, then the number of molecules per unit area is $n\xi$. Thus, if the electromagnetic radiation with frequency f incides on an area S of the lamina it reaches $nS\xi$ molecules. If it incides on the *total area of the lamina*, S_f, then the total number of molecules reached by the radiation is $N = nS_f\xi$. The number of molecules per unit volume, n, is given by

$$n = \frac{N_0 \rho}{A} \quad (7)$$

where $N_0 = 6.02 \times 10^{26} molecules/kmole$ is the Avogadro's number; ρ is the matter density of the lamina (in kg/m^3) and A is the molar mass($kg/kmole$).

When an electromagnetic wave incides on the lamina, it strikes N_f front molecules, where $N_f \cong (n\,S_f)\phi_m$, ϕ_m is the "diameter" of the molecule. Thus, the electromagnetic wave incides effectively on an area $S = N_f S_m$, where $S_m = \frac{1}{4}\pi\phi_m^2$ is the cross section area of one molecule. After these collisions, it carries out $n_{collisions}$ with the other molecules (See Fig.2).
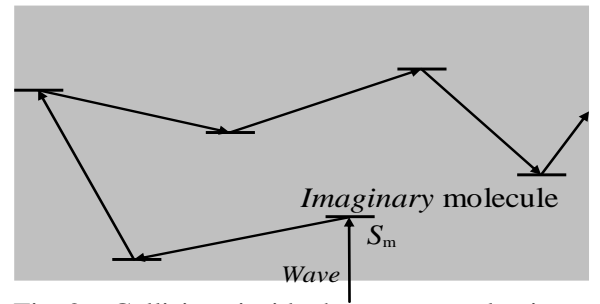

Imaginary molecule

S_m

Wave

Fig. 2 – Collisions inside the *imaginary* lamina.

Thus, the total number of collisions in the volume $S\xi$ is

$$N_{collisions} = N_f + n_{collisions} = n_l S\phi_m + (n_l S\xi - n_m S\phi_m) =$$
$$= n_m S\xi \quad (8)$$

The power density, D, of the radiation on the lamina can be expressed by

$$D = \frac{P}{S} = \frac{P}{N_f S_m} \qquad (9)$$

We can express the *total mean number of collisions in each molecule*, n_1, by means of the following equation

$$n_1 = \frac{n_{total\ photons} N_{collisions}}{N} \qquad (10)$$

Since in each collision a *momentum* h/λ is transferred to the molecule, then the *total momentum* transferred to the lamina will be $\Delta p = (n_1 N) h / \lambda$, i.e., $U n_r / c = (n_1 N) n_r h / \lambda = (n_1 N) h / \lambda_{mod}$ Therefore, in accordance with Eq. (2), we can write that

$$\frac{m_{g(l)im}}{m_{i0(l)im}} = \left\{ 1 - 2 \left[\sqrt{1 + \frac{3}{4} \left[(n_1 N) \frac{\lambda_0}{\lambda_{mod}} \right]^2} - 1 \right] \right\} =$$

$$= \left\{ 1 - 2 \left[\sqrt{1 + \frac{3}{4} \left[n_{total\ photons} N_{collisions} \frac{\lambda_0}{\lambda_{mod}} \right]^2} - 1 \right] \right\} \quad (11)$$

Since Eq. (8) gives $N_{collisions} = n_l S \xi$, we get

$$n_{total\ photons} N_{collisions} = \left(\frac{P}{hf^2} \right) (n_l S \xi) \qquad (12)$$

Substitution of Eq. (12) into Eq. (11) yields

$$\frac{m_{g(l)im}}{m_{i0(l)im}} = \left\{ 1 - 2 \left[\sqrt{1 + \frac{3}{4} \left[\left(\frac{P}{hf^2} \right) (n_l S \xi) \frac{\lambda_0}{\lambda_{mod}} \right]^2} - 1 \right] \right\} \quad (13)$$

Substitution of P given by Eq. (9) into Eq. (13) gives

$$\frac{m_{g(l)im}}{m_{i0(l)im}} = \left\{ 1 - 2 \left[\sqrt{1 + \frac{3}{4} \left[\left(\frac{N_f S_m D}{f^2} \right) \left(\frac{n_l S \xi}{m_{i0(l)} c} \right) \frac{1}{\lambda_{mod}} \right]^2} - 1 \right] \right\} \quad (14)$$

Substitution of $N_f \cong (n_l S_f) \phi_m$ and $S = N_f S_m$ into Eq. (14) results

$$\frac{m_{g(l)im}}{m_{i0(l)im}} = \left\{ 1 - 2 \left[\sqrt{1 + \frac{3}{4} \left[\left(\frac{n_l^3 S_f^2 S_m^2 \phi_m^2 \xi D}{m_{i0(l)} c f^2} \right) \frac{1}{\lambda_{mod}} \right]^2} - 1 \right] \right\} \quad (15)$$

where $m_{i0(l)} = \rho_{(l)} V_{(l)}$.

The case in which the area S_f is just the *area of the cross-section of the lamina* (S_α), we obtain from Eq. (15), considering that $m_{i0(l)} = \rho_{(l)} S_\alpha \xi$, the following expression

$$\frac{m_{g(l)im}}{m_{i0(l)im}} = \left\{ 1 - 2 \left[\sqrt{1 + \frac{3}{4} \left[\left(\frac{n_l^3 S_\alpha S_m^2 \phi_m^2 D}{\rho_{(l)} c f^2} \right) \frac{1}{\lambda_{mod}} \right]^2} - 1 \right] \right\} \quad (16)$$

If the electrical conductivity of the lamina, $\sigma_{(l)}$, is such that $\sigma_{(l)} \gg \omega \varepsilon$, then the value of λ is given by Eq. (6), i.e.,

$$\lambda = \lambda_{mod} = \sqrt{\frac{4\pi}{\mu f \sigma}} \qquad (17)$$

Substitution of Eq. (17) into Eq. (16) gives

$$\chi = \frac{m_{g(l)im}}{m_{i0(l)im}} = \left\{ 1 - 2 \left[\sqrt{1 + \frac{3 n_l^6 S_\alpha^2 S_m^4 \phi_m^4 \mu \sigma \ D^2}{16 \pi \rho^2 c^2 f^3}} - 1 \right] \right\} \quad (18)$$

The Soul has been frequently described as a body of *unknown energy* coupled to human body by means of a mutual interaction. This type of energy from the viewpoint of Physics, has been considered as *Imaginary* Energy. The term imaginary is borrowed from Mathematics (real and imaginary numbers) [3]. As imaginary energy, the Soul can be now defined as an *imaginary body*, made of *imaginary particles* each one them described by *imaginaries wavefunctions* ψ_{im}, by similarity to the real bodies, which are made of real particles described in *Quantum* Mechanics by its real wavefunction ψ. The extension of the *imaginary wavefunction* to the *relativistic form* can be then made in a consistent way with the Lorentz transformations equations of the special theory of relativity [7, 8], similarly to the real wavefunction [4]. In addition, the Soul's energy can be now expressed by the well-known Einstein's energy expression $(E = mc^2)$ extended to the imaginary form, i.e., $E_{g(S)im} = m_{g(S)im} c^2$. Therefore, we can say that the Soul has an *imaginary* energy $E_{g(S)im} = m_{g(S)im} c^2$ where $m_{g(S)im}$ is the *imaginary* gravitational mass of Soul, which according to Eq. (18), is correlated to *imaginary* inertial mass of Soul at rest, $m_{i0(S)im}$, by means of the following

expression: $\chi_S = m_{g(S)im}/m_{i0(S)im}$. This means that the value of $E_{g(S)im}$ can be decreased and also made negative by means of absorption of energy of radiation incident upon the Soul (See Eq.18).

As widely mentioned in the literature of Spiritualistic Philosophy, the Soul has 2 parts: *Perispirit* and *Spirit* (See Fig.1). The Spirit is inside the human body (HB); *the Perispirit is an involucre of the spirit*, its boundaries coincide with the boundaries of the human body. The *perispirit* density $\left(\rho_{pe} = m_{i0(pe)im}/V_{(pe)im} = real\right)$ is equal to the density of the mean where the Soul is [9]. This occurs by the imaginary mass decrease or by the imaginary mass increase, resultant, respectively, from the emission or absorption of imaginary energy from the Universe. Thus, in the *human body* the *perispirit* density is

$$\rho_{pe} = \rho_{HB} \cong 1000 kg.m^{-3}$$

Therefore, according to Eq. (7), we can write that the density of molecules in the perispirit is given by

$$n_{pe} = \left(N_0 \rho_{pe}/A\right) \cong 3.3\times10^{28} molecules.m^{-3}$$

where $A = A_{H2O} = 18kg/kmole$. Out of the Earth's atmosphere (outer space) the density of the perispirit is equal to the density of the spirit $\left(\rho_s = m_{i0(s)im}/V_{(s)im} = real\right)$. In the outer space, the Earth's atmospheric pressure drops to about 3.2×10^{-7} atm [10]. Thus using the well-known Equation of State $\left(\rho = PM_0/ZT\right)$, we can write the following correlation expression:

$$\frac{\rho_{air(1atm)}}{\rho_{air(outer\ space)}} = \frac{1atm}{3.2\times10^{-7}\ atm}$$

This means that the *density of spirit* is given by

$$\rho_s = \rho_{pe(outer\ space)} = \rho_{air(outer\ space)} =$$
$$= 3.8\times10^{-7}\ kg.m^{-3}$$

Thus, inside the human body the perispirit density is $\rho_{pe} = \rho_{HB} \cong 1000 kg.m^{-3}$ and the spirit density is $\rho_s = 3.8\times10^{-7} kg.m^{-3}$. Since the Perispirit is just an involucre of the spirit, we can assume that $\rho_S \cong \rho_s$.

The gravitational mass of the Soul, $m_{g(S)im}$, is given by the sum of the spirit's gravitational mass with the perispirit's gravitational mass, i.e.,

$$m_{g(S)im} = m_{g(s)im} + m_{g(pe)im}$$

As the *perispirit* is the unique part of the Soul with sufficient density to absorb measurable amounts of electromagnetic energy, we can neglect the contribution of the energy absorbed by the spirit in the calculation of the total energy absorbed by the Soul making $m_{g(s)im} = 0$. Under these conditions, we can write that the *gravitational mass of the Soul*, $m_{g(S)im}$, is given by

$$m_{g(S)im} = \underbrace{m_{g(s)im}}_{0} + m_{g(pe)im} = m_{g(pe)im} \qquad (19)$$

By analogy, the expression of the inertial mass of the Soul, $m_{i0(s)im}$ can be written as follows

$$m_{i0(S)im} = \underbrace{m_{i0(s)im}}_{0} + m_{i0(pe)im} \cong m_{i0(pe)im} \qquad (20)$$

Based on Eq. (19) we can write that $\rho_S V_{(S)im} = \rho_{pe} V_{(pe)im}$, where $V_{(pe)im} = S_{(\alpha)im}\Delta x_{pe}$; Δx_{pe} is the thickness of perispirit. Since $\rho_S \cong \rho_s$ and $V_{(S)im} \cong V_{(s)im}$, we can write that $\rho_S V_{(S)im} \cong \rho_s V_{(s)im} = \rho_{pe} V_{(pe)im}$. In addition, we have $V_{(S)im}/S_{(\alpha)im} \cong V_{(s)im}/S_{(\alpha)im} = V_{HB}/S_{HB} \cong 0.4m^3/1.1m^2 \cong 0.4m$. Thus, we can conclude that

$$\Delta x_{pe} = \left(\frac{\rho_s}{\rho_{pe}}\right)\left(\frac{V_{(s)im}}{S_{(\alpha)im}}\right) \cong 2\times10^{-10} m \qquad (21)$$
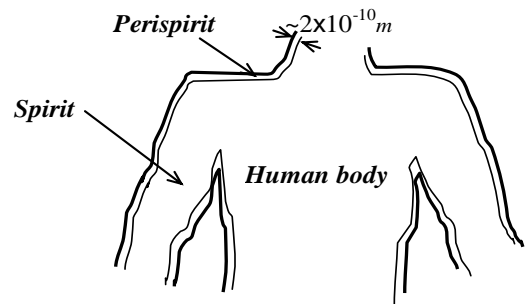

Fig. 3 – *Perispirit and Spirit*. The Spirit is inside the human body; the Perispirit is an involucre of the spirit, its boundaries coincide with the boundaries of the human body.

The power density of radiation, D_{pe}, absorbed by the perispirit can be expressed by $D_{pe} = \left(\Delta x_{pe} / \delta_{pe} \right) D$ where δ_{pe} is length scale for *total* absorption of the radiation with frequency $\omega = 2\pi f$. As we know, if the electrical conductivity of the mean, σ, is such that $\sigma \gg \omega \varepsilon$, where ε is the permittivity of the mean, then δ is given by [11]:

$$\delta = 2.5 \times 10^3 \big/ \sqrt{f\sigma} \qquad (22)$$

Therefore, we can write that

$$D_{pe} = \left(\Delta x_{pe} / \delta_{pe} \right) D \cong 8 \times 10^{-14} \sqrt{f\sigma_{pe}} \, D \quad (23)$$

where D is the total power density of the incident radiation on the perispirit.

By dividing Eq. (19) by Eq. (20) we obtain

$$\chi_S = \frac{m_{g(S)im}}{m_{i0(S)im}} = \frac{m_{g(pe)im}}{m_{i0(pe)im}} = \chi_{pe}$$

Thus, based on Eq. (18), we can write that

$$\chi_S = \chi_{pe} = \frac{m_{g(pe)im}}{m_{i0(pe)im}} =$$

$$= \left\{ 1 - 2 \left[\sqrt{1 + \frac{3 n_{pe}^6 S_\alpha^2 S_m^4 \phi_m^4 \mu_0 \sigma_{pe} \, D_{pe}^2}{16 \pi \rho_{pe}^2 c^2 f^3}} - 1 \right] \right\} \quad (24)$$

Further on, we will show that the electrical conductivity of perispirit is enormous (10 trillion times greater than that of the metals), what shows that it contains a *plasma*. For the population of excited states for the elements in the plasma to be predominately caused by collisions with electrons and not by radioactive processes, it requires a minimal electron density to ensure these collisions. This *minimal electron density* is known as the McWhirter criterion and is defined as [12]:

$$N_e \geq 1.6 \times 10^{18} T^{\frac{1}{2}} (\Delta E)^3 \qquad (25)$$

where ΔE (in eV) is the largest gap between 2 adjacent energy levels; T (in K) is the plasma temperature, and N_e is in electrons/m³.

This condition is deduced for hydrogen and hydrogen-like atoms in an optically thin, stationary and homogenous plasma [13]. The largest gap for hydrogen is indeed between the ground state and the first excited energy state and corresponds to 4 eV. This is not always the case for other elements. The largest energy gap for oxygen does not include the ground state and is 10 eV. In order to calculate the value of n_e for the perispirit at the human body, we must take these values: $\Delta E = 10 eV$, $T \cong 300K$. The result is

$$N_e \geq 3 \times 10^{22} \, electrons.m^{-3} \qquad (26)$$

As we have already shown $n_{pe} \cong 3.3 \times 10^{28} \, molecules.m^{-3}$. Thus, we can assume that

$$N_{pe} \approx 10^{28} \, ions.m^{-3}$$

It is known that the electrical conductivity is proportional to both the concentration and the mobility of the *ions* and the *free electrons*, and is expressed by

$$\sigma = n_e \mu_e + n_i \mu_i$$

where n_e and n_i express respectively the concentrations $\left(C/m^3 \right)$ of *electrons* and atom-*ions*; μ_e and μ_i are respectively the mobilities of the electrons and the ions.

In order to calculate the electrical conductivity of the perispirit, we first need to calculate the concentrations n_e and n_i. We start by calculating the value of n_i, which is given by

$$n_i = n_e = N_{pe} e \approx 10^9 \, C/m^3$$

This corresponds to the concentration level in the case of *conducting materials*. For these materials, at temperature of 300K, the mobilities μ_e and μ_i are of the order of $10^{-1} m^2 V^{-1} s^{-1}$ [14]. Very high mobility has been found in several low-dimensional systems, such as two-dimensional electron gases (2DEG) ($300 m^2 V^{-1} s^{-1}$), [15] carbon nanotubes ($10 m^2 V^{-1} s^{-1}$) [16] and more recently, graphene ($20 m^2 V^{-1} s^{-1}$)[17]. It is known that the mobility μ_d is related to the drift velocity v_d by means of the following equation:

$$v_d = \mu_d E$$

where E is the electric field. Thus, based on

this equation, we can relate the mobility of free electrons of the Soul, μ_e, with the typical mobility of conductors, $\mu_{cond} \approx 10^{-1} m^2 V^{-1} s^{-1}$, by means of the following expression:

$$\mu_e = \frac{v_{d(pe)}}{v_{d(cond)}} \mu_{cond} \qquad (27)$$

where the typical drift velocity in conductors is $v_{d(cond)} \approx 10^{-4} m/s$ [18], and the drift velocity in perispirit is $v_{d(pe)} \approx c$ (since there are no collisions among the imaginary electrons). Thus, we get

$$\mu_e \approx 10^{12} m^2 V^{-1} s^{-1}$$

Consequently, we can write that the electrical conductivity of perispirit is given by

$$\sigma_{pe} = n_e \mu_e + n_i \mu_i \approx 10^{21} S.m^{-1} \qquad (28)$$

By substitution of this value into Eq. (22), we get

$$\delta_{pe} \cong 10^{-7}/\sqrt{f} \qquad (29)$$

By substitution of $\sigma_{HB} \approx 0.1 S/m$ (conductivity of human body) into Eq. (22), we obtain

$$\delta_{HB} \cong 10^4/\sqrt{f} \qquad (30)$$

Substitution of the values of $n_{pe}, \sigma_{pe}, \rho_{pe}, D_{pe}, \phi_m = 1.55 \times 10^{-10} m$, (average "diameter" of the *molecules*), $S_m = \pi \phi_m^2/4 = 1.88 \times 10^{-20} m^2$ and $S_\alpha \cong 1.1 m^2$ into Eq. (24), gives

$$\chi_S = \left\{ 1 - 2 \left[\sqrt{1 + \frac{\sim 10^{39} D^2}{f^2}} - 1 \right] \right\} \quad (31)$$

In this expression, the *minimum value* of D is limited by the *uncertainty principle*, i.e., by the amount of energy ΔE that can be detectable by our instruments. According to the uncertainty principle, $\Delta E \Delta t \geq \hbar$. Thus, $\Delta E \geq \hbar/\Delta t \rightarrow \Delta E_{min} = \hbar/\Delta t_{max}$. Since we can write that $D = \Delta E/S_\alpha \Delta t \geq \hbar/S_\alpha \Delta t^2 \rightarrow D_{min} = \hbar/S_\alpha \Delta t_{max}^2$, we obtain $D_{min} = \Delta E_{min}^2/\hbar S_\alpha$. Here, $\Delta E_{min} = kT$, because if $< kT$, then the action of the incident radiation will be hidden by the action of the thermal radiation (kT). Consequently, we can write that

$$D_{min} = k^2 T^2/\hbar S_\alpha .$$

Based on Eq.(31), we can write that the *Soul imaginary* energy $E_{g(S)im} = m_{g(S)im} c^2$ can be expressed by

$$E_{g(S)im} = m_{g(S)im} c^2 = \chi_S m_{i0(S)im} c^2 \cong$$
$$\cong \left\{ 1 - 2 \left[\sqrt{1 + \frac{10^{39} D^2}{f^2}} - 1 \right] \right\} m_{i0(S)im} c^2 \qquad (32)$$

This energy varies along the time, having a minimum value at the beginning of life and a maximum value, $m_{g(S)im}^{max} c^2$, in a specific instant of the life of the person. After this maximum value, the energy decreases progressively down to the instant of the death of the person. This means that the average variation of this energy along the time can be expressed by the well-known *bell curve* (probability curve [19]), in the following form

$$m_{g(S)im} c^2 = m_{g(S)im}^{max} c^2 e^{-4\pi^2 b^2 t^2} \qquad (33)$$

where b is a time-constant to be defined. Since $m_{g(S)im} = \chi m_{i0(S)im}$ and $m_{g(S)}^{max} = \chi m_{i0(S)im}^{max}$ Eq. (33) can be rewritten as follows

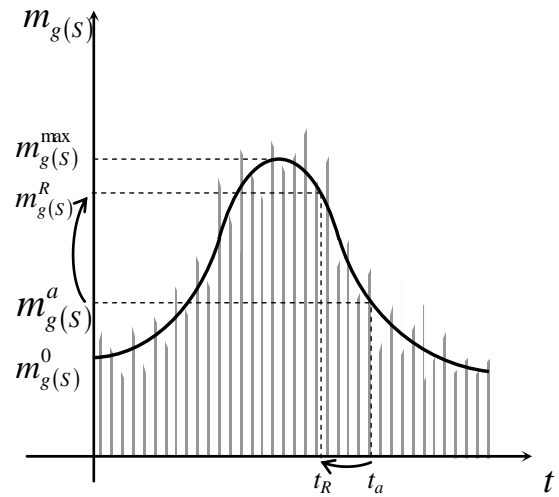$$m_{i0(S)} = m_{i0(S)}^{max} e^{-4\pi^2 b^2 t^2} \qquad (34)$$

Fig.4 - The variation of the *gravitational mass of the Soul* (Soul energy $m_{g(S)} c^2$) along the life of a person, and Quantum Reversal from the current energy level to a previous energy level.

Making $t = t_a$ (current time in the life of the person), and after $t = t_R$ (*reversal time**, see

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* This is not a return in time. It is only return to *energy level* that the Soul had at a specific time of its life.

Fig.4) into Eq. (34), we obtain the following expressions

$$m^a_{i0(S)} = m^{max}_{i0(S)} e^{-4\pi^2 b^2 t_a^2} \qquad (35)$$

and

$$m^R_{i0(S)} = m^{max}_{i0(S)} e^{-4\pi^2 b^2 t_R^2} \qquad (36)$$

By dividing Eq.(35) by Eq. (36), we get

$$m^a_{i0(S)} = m^R_{i0(S)} e^{-4\pi^2 b^2 \left(t_a^2 - t_R^2\right)} \qquad (37)$$

Positive values of the Soul energy express the progress of the energy levels and obviously, a given positive value cannot to cause reversion. Thus, in order to occur the reversion it is necessary that $\chi_S < 0$, When this occurs, the energy of the Soul ($m^a_{g(S)im}c^2 = \chi_S m^a_{i0(S)im}c^2$) becomes *positive and returns to the corresponding* value ($m^R_{i0(S)}c^2 = |\chi_S| m^a_{i0(S)im}c^2$). Thus, we can write that $m^R_{i0(S)} = |\chi_S| m^a_{i0(S)}$. Substitution of this expression into Eq. (37) gives

$$m^a_{i0(S)} = |\chi_S| m^a_{i0(S)} e^{-4\pi^2 b^2 \left(t_a^2 - t_R^2\right)} \qquad (38)$$

or

$$|\chi_S| = e^{4\pi^2 b^2 \left(t_a^2 - t_R^2\right)} \qquad (39)$$

Note that the time-constant b^{-2} must be a very big number, because the values of $e^{\left(t_a^2 - t_R^2\right)}$ are enormous in the case of $0 << t_a < 3.1 \times 10^9 s$ (100years). Thus, if the value of b^{-2} is not very big then the values of χ_S lose their meaning. A very big number related to the time is, certainly, the age of the Universe. Thus, we will define the time-constant b^{-2} as follows

$$b^{-2} = 4.26 \times 10^{17} s = current\ age\ of\ Universe$$

For example, if a person is exactly 62 years old ($t_a = 1.928 \times 10^9 s$), and wants to revert its Soul energy to the energy that it had at *5 years* ago (57 years old, $t_R = 1.774 \times 10^9 s$),

then the value of χ_S, according Eq.(39), must be given by

$$|\chi_S| = e^{4\pi^2 b^2 \left(t_a^2 - t_R^2\right)} \cong e^{51.32} \cong 1.9 \times 10^{22} \quad (40)$$

Equation (31) shows that, in order to obtain $\chi_S = -1.9 \times 10^{22}$, is necessary to apply on the *Soul* (body) an electromagnetic radiation with frequency f and power density D, given by

$$D \cong 300f \qquad (41)$$

Maximum Permissible Exposure (MPE) levels have been established by ANSI Z136.1 [20] for various laser wavelengths and exposure durations. The MPE is the level of laser radiation to which a person may be exposed without hazardous effect or adverse biological changes in the eye or skin. This limit is ~1000 W/m². Here, considering this limit, we can conclude that, according to Eq. (41), the maximum value for the frequency is about 3.3Hz.

Now, we can verify the effect of the ELF radiation upon the *gravitational mass* of the *human body*. By substitution of $n_{HB} = n_{pe}$, $\rho_{HB} = \rho_{pe}$, $\sigma_{HB} \sim 0.1 S/m$, $\phi_m = 1.55 \times 10^{-10} m$, $S_m = \pi \phi_m^2 / 4 = 1.88 \times 10^{-20} m^2$ and $S_\alpha \cong 1.1 m^2$ into Eq. (18) we obtain

$$\chi_{HB} = \left\{ 1 - 2 \left[\sqrt{1 + \frac{\sim 10^{23} \sigma_{HB} D_{HB}^2}{f^3}} - 1 \right] \right\} \quad (42)$$

The expression of D_{HB} can be obtained from the following relation

$$\frac{D_{HB}}{D_{pe}} = \frac{\delta_{pe}}{\delta_{HB}} \qquad (43)$$

where $D_{pe} \cong 8 \times 10^{-14} \sqrt{f \sigma_{pe}} D$ (Eq. 23). Thus, Eq. (43) can be rewritten as follows

$$D_{HB} \cong 10^{-14} \sqrt{f} D \qquad (44)$$

Substitution of this equation into Eq. (42), gives

$$\chi_{HB} = \left\{ 1 - 2 \left[\sqrt{1 + \frac{\sim 10^{-6} D^2}{f^2}} - 1 \right] \right\} \quad (45)$$

Substitution of Eq. (41) into (45) yields $\chi_{HB} > 0.9$. This corresponds to a weight decrease of less than 10%, which shows that, here, in the case of $D \cong 300f$, the effect of

the *ELF radiation* upon the *gravitational mass* of the *human body* is negligible.

By comparing Eqs. (31) and Eq. (39), we can write that

$$e^{4\pi^2 b^2 \left(t_a^2 - t_R^2\right)} = \left|\left\{1 - 2\left[\sqrt{1 + \frac{\sim 10^{39} D^2}{f^2}} - 1\right]\right\}\right|$$

or

$$4\pi^2 b^2 \left(t_a^2 - t_R^2\right) = \ln\left|\left\{1 - 2\left[\sqrt{1 + \frac{\sim 10^{39} D^2}{f^2}} - 1\right]\right\}\right|$$

Since

$b^{-2} = 4.26 \times 10^{17} s = current\ age\ of\ Universe$, we get

$$\left(t_a^2 - t_R^2\right) =$$
$$= 1.08 \times 10^{16} \ln\left|\left\{1 - 2\left[\sqrt{1 + \frac{\sim 10^{39} D^2}{f^2}} - 1\right]\right\}\right| \quad (46)$$

As we have already show, the value of $D_{\min}$ is given by $D_{\min} = k^2 T^2 / \hbar S_\alpha$. Thus, for $T = 300K$ and $S_\alpha \cong 1.1 m^2$ ($S_\alpha \cong 1.1 m^2$ is the medium *area of a human body* (adult).), we obtain

$$D_{\min} = k^2 T^2 / \hbar S_\alpha = 1.5 \times 10^{-7} W/m^2$$

In the case of a fetus inside the *uterus* of the mother, we can assume that:

$$S_\alpha = 4\pi \bar{r}_{uterus}^2 = 4\pi (0.20)^2 \cong 0.5 m^2$$

In this case, for $T = 300K$, we get

$$D_{\min(uterus)} = k^2 T^2 / \hbar S_\alpha = 3.5 \times 10^{-7} W/m^2$$

This is the energy density of *infrared radiation* incident on the *uterus*. In this case, we have that, $hf = kT$. Thus, the frequency f is given by

$$f = (k/h)T = 6.3 \times 10^{12} Hz.$$

Therefore, Eq. (46) can be rewritten as follows

$$\left(t_a^2 - t_R^2\right) =$$
$$= 1.08 \times 10^{16} \ln\left|\left\{1 - 2\left[\sqrt{1 + \frac{\sim 10^{39} D_{\min(uterus)}^2}{f^2}} - 1\right]\right\}\right| =$$
$$= 1.08 \times 10^{16} (0.042) = 4.5 \times 10^{14} \quad (46a)$$

Here, in this equation, $t_R = 0$ means the beginning of the time period, in which the quantum reversal of the *soul* can occurs for the person that will be born (*this is, therefore, the exact instant, in which the soul incorporates the fetus*). On the other hand, the value of t_a for $t_R = 0$, corresponds to the age of the fetus when occurs the incorporation of the soul. Therefore, *this value* of t_a, expresses the exact moment, in which *life* begins for the person. In other words, for the person that will be born, *do not exists life* before this moment. Making $t_R = 0$ in Eq. (46a), we can then obtain this value of t_a, i.e.,

$$t_a = \sqrt{4.5 \times 10^{14}} = 2.1 \times 10^7 s = 8.1 months$$

Therefore, *up to 8.1 months there is not yet human life in the fetus*. This conclusion is very important, because it eliminates the belief that life begins at the beginning of pregnancy. In fact, this belief is very erroneous because, it is known that the nervous system is only properly formed around 3 months, and therefore it would be a huge mistake (and God does not make mistakes) the soul to be incorporated into the fetus when the nervous system is not yet formed.

Now, based on Quantum Physics, we calculate with precision *the exact moment when life begins*, for the person that will be born. This result has profound consequences for humanity because it puts an end once and for all to outdated ideas against women's right to abort the fetus. As we have already shown, before the 8th month of pregnancy *there is no human life in the fetus*. So, the women can carry out the abortion of the fetus, before the 8° month of pregnancy, safe

in the knowledge that they are not committing any crime against human life.

Obviously, now the laws need to be modified to correct the error, and guarantee women their rights.

Quantum Physics shows that the *energy* is *quantized*, i.e., it has discrete values that are defined as discrete energy levels that correspond to all positive integer values of the *quantum number* n, $(n = 1,2,3,...)$. Thus, along the life of a person, the energy of its Soul is characterized by several quantum levels of energy. Then, we can say that, when occurs a reversal of soul energy, it carries out a *quantum reversal* to a previous level of energy.

Any action once performed leaves an impression on the Soul (its energy). Thus, each energy level of a Soul expresses, at the corresponding moment, the human being in its totality. This means, for example, that our current human shape results from the current energy level (spectrum) of our Soul. Imagine that a person break a leg when it is 50 years old. If he is subjected to an electromagnetic radiation flux with $\boxed{D \approx 300W/m^2 \, at \; 1Hz}$, then its Soul carries out a quantum reversal to the energy level that he had 5 years ago. At this energy level the leg was not broken in the human body. Consequently, we can expect that the broken part disappears, and the leg returns to the form that it had in this energy level. By means of this process it seems possible *the immediate cure of any wound*, *any kind of disease*, and also the *resuscitation* of persons who have died some seconds ago (before the spirit leaves the human body).

It is known that the brain is able to generate electromagnetic waves with frequencies smaller than 100HZ. The brainwaves of lowest frequencies are the *Delta waves*. Delta waves are defined as having a frequency between 0.5 and 2 hertz. They are the highest amplitude brainwaves. In adults they are radiated from their forehead [21]. Also, it is known that the total electromagnetic power (all the frequencies) generated by the brain can reach up to 25W or more [22]. This means that at a distance of 1m from the brain a maximum power density is about 2W/m². Substitution of this value and $f = 1Hz$ into Eq. (31) gives

$$\chi_S = -1.265 \times 10^{20}$$

Comparing with Eq. (40), yields

$$|\chi_S| = e^{4\pi^2 b^2 \left(t_a^2 - t_R^2\right)} \cong e^{46.286} \cong 1.265 \times 10^{20} \quad (47)$$

whence we obtain

$$t_R = \sqrt{t_a^2 - 4.994 \times 10^{17}} \quad (48)$$

For $t_a = 1.928 \times 10^9 s = 62 \, years$, we obtain

$$t_R \cong 1.794 \times 10^9 s \cong 58 \, years \quad (49)$$

This means a return of approximately *4 years* in the Soul energy level. Note that, while it is necessary 2W/m² at 1Hz to return 4 years, it is necessary 300W/m² at 1Hz to return 5 years.

However, only a small part of the 25W is due to the delta waves. This means that the return is yet smaller. It obvious that the power densities of the delta waves radiated from the brains vary of persons for persons. Possibly, for most the persons the power densities of delta waves radiated from its brains are negligible (smaller than the critical value $D_{\min} \cong 1.5 \times 10^{-7} W/m^2$). Since we can relate the radiation density, D, with the intensity of the electric field, E, by means of the following expression $D = n_r E^2 / 2\mu_0 c$ [23], then, considering that the value of electric field in the forehead of a person (when emitting delta waves) is $E = V/r$, where V is the local electric potential (for ordinary persons $V \approx 150 \mu V$ [24]), and r is the radius of the sphere with the same volume of the brain $(r \approx 0.1m)$, then we can write that

$$D = \frac{E^2}{2\mu_0 c} = \frac{V^2}{2\mu_0 c r^2} \approx 10^{-9} W/m^2 << D_{\min}$$

This shows why the ordinary persons cannot to produce immediate cures. Equation above shows that to produce $D > D_{\min}$ is necessary that $V > 1mV$ (approximately 10 times greater than that of ordinary persons).

Note that, if $t_a = 1.866 \times 10^8 s = 6 \, years$, and we want to return 1 year, then for *1Hz* the necessary value of χ_S, according to Eq.

(39) is $|\chi_S| = e^{0.986} \rightarrow \chi_S = -2.68$. Thus, according to Eq. (31) the value of D is $8.4 \times 10^{-20} W/m^2$. However, as we have already seen, the value of D is limited to $D_{\min} \cong 1.5 \times 10^{-7} W/m^2$. This means that the return of 1 year, in the case what $t_a = 1.866 \times 10^8 s = 6 years$, is impossible. Also, note that for $D \geq D_{\min}$ the values of t_R become imaginaries. What means that it is impossible to return the soul energy of a child with 6 years old. In general, it is impossible to return the soul energy of any person with $t_a < \sqrt{\ln|\chi_S|/4\pi^2 b^2}$.

Since $D_{\max} \cong 10^3 W/m^2$ and $f_{\min} \cong 0.1 Hz$, we obtain from Eqs. (31) and (39) the following expression:

$$t_R^{\max} = \sqrt{t_a^2 - 5.914 \times 10^{17}} \quad (50)$$

For $t_a = 1.928 \times 10^9 s = 62 years$, we get $t_R^{\max} = 1.768 \times 10^9 s \cong 56.8 years$. This means a maximum return of ~ *5.2 years* in the soul energy level. For $t_a = 9.330 \times 10^8 s = 30 years$, Eq. (50) gives $t_R^{\max} = 5.282 \times 10^8 s \cong 17 years$. Therefore, a return of approximately *13 years,* in the soul energy level. Note that, the maximum return possible, $\sim 13.8 years$, occurs for $t_a \cong 29 years$.

Fig. 5 – *The immediate Cure or Resuscitation.* Delta waves are defined as having a frequency between 0.5 and 2 hertz. They are the highest amplitude brainwaves. In adults they are radiated from their forehead.

The building of ELF transmitters is very difficult because the length of the antenna is enormous. In the case of 1Hz the antenna length must be of the order of 100.000km. However, by using the process of gravitational *redshift* at laboratory scale, shown in a previous paper [25] it is possible for example, to reduce frequencies $f \cong 1 GHz$ down to ~1Hz. In order to produce a power density $D \cong 10^{-6} W/m^2$ at ~1Hz, by the mentioned redshift process, it is necessary an initial flux with $D \cong 10^3 W/m^2$ at ~1GHz, what corresponds to the minimum frequency band of MASERS. These devices were invented before the laser, but have languished in obscurity because they required high magnetic fields and difficult cooling schemes. Hydrogen masers oscillate at a frequency at around 1.42GHZ and have a typical power of ~ 10^{-13}W [26]. They are very complex and expensive devices.

Recently, it was discovered a *room-temperature solid-state maser*, which oscillates at frequency of 1.45GHZ. Basically, it is a simple crystal called *p-terphenyl*. This new device is very simple to build and operate, and removes totally the masers' complexity. When configured as an oscillator, this solid-state maser's measured output power density of around $1m$W/mm^2 $\cong$ 1000W/m^2 (approximately 100 million times greater than that of an atomic hydrogen maser) [27].

10^6 masers each one with 10^{-3} W/mm^2 at 1.45GHz

$10m$ x $10m$

10 W/m^2 at 1.45GHz

Deflection System

Redshift System

1000 W/m^2 at 1.45GHz
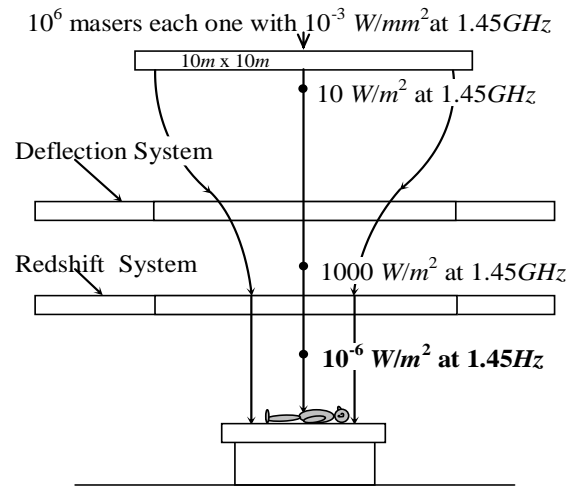
10^{-6} W/m^2 at 1.45Hz

Fig. 6 – Schematic diagram of a system, using solid-state masers, to produce an ELF radiation flux with **10^{-6} W/m^2 at 1.45Hz**.

Considering that each one of these masers radiates $1m$W/mm^2, then it is

necessary a set of 10^6 masers placed inside an area of 10mx10m (See Fig.6), and *after concentrated* into an area of $1m^2$ (by means of the process of deflection of electromagnetic waves at laboratory scale [28]), in order to obtain a flux of 10^3W/m^2 at 1.45 GHz, which is posteriorly redshifted to a flux of 10^{-6}W/m^2 at 1.45Hz $\left(D_{\min} \cong 1.5 \times 10^{-7} W/m^2\right)$. Substitution of these values into Eq. (31) gives $\chi_S \cong -4 \times 10^{13}$. By substitution of this value into Eq. (39), we get

$$t_R = \sqrt{t_a^2 - 3 \times 10^{17}} \qquad (51)$$

This equation shows that the system will only be useful to produce *short returns* in the soul energy of persons with $t_a > 18 years$. Similar systems with higher power densities can provide *higher returns*, for persons with $t_a \gg 18 years$.

Probably all human brains are able to generate delta waves. But, only few brains can generate fluxes of this kind of radiation with the necessary power density to return the energy of the Soul to a previous energy level, sufficient to carry out the immediate cure of any wound, any kind of disease, or the resuscitation of persons. The history shows the existence of several persons who have realized immediate cures, and someone that has carried out even resuscitations. Among them, the most known is Jesus of Nazareth.

As we have already shown, the ordinary persons usually are not able to produce fluxes of delta waves with power densities sufficient to carry out immediate cures ($D > D_{\min} \cong 1.5 \times 10^{-7} W/m^2$). Also, we have shown that, in order to carry out these cures is necessary power densities about 100 times more intense then those produced by the ordinary persons $\left(D \approx 10^{-9} W/m^2\right)$. In addition, it is very rare to remain conscious during the emission of delta waves. Thus, the persons who, at conscious state, are able to radiate fluxes of delta waves with power densities 100 times more high than those produced by the ordinary persons - which just radiate delta waves at sleep state - are really *extraordinary persons*.

What is necessary for the brain of a person acquire this capacity? A special diet? Specific physical exercises? Or the persons only acquire this capacity by means of the evolution? That is, all persons have this capacity on a latent stage, but it is only awakened at a specific evolution level.

Recently, it was proved that the state of mature cells, with a specific disease, can be reverted to a previous state (pluripotent stem cell state), where the cells become healthy[†] [29,30]. This is in agreement with the process of *quantum reversal of the soul energy*, proposed in this work, which shows that it is possible to revert the current state of a human body to a healthy previous state.

This matter is unprecedented in the literature. It is necessary more than one paper to deepen it. We will return to this matter in a future work.

[†] This work, initiated by Gurdon (1962) and concluded by Yamanaka (2006), has been awarded with the 2012 Nobel Prize in Medicine.

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