

Physics discoveries applicable in Medicine and Pharmacology

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Abstract

The new discoveries in the Subquantum Digital Physics enclosed in the paper-Report to 'Med2Pharm's Int. Conf.' Sep. 2020 at Prague, based on the quantitative physical constants resulted from the previously measurements accomplished by other brilliant researchers, explain 'the natural essence of the: electricity, quantum gravity which are foundation for the physical chemistry of the entire condensed matter, gravitational and inertial masses, structures of the elementary particles, photons and thermo-photons, nuclear and atomic forces'.

The research method, called 'qualitative analysis of the quantity', consisted in 'identifying the physical entities participating in the analysed phenomena, by natural, basic IS units of measurement: **kg, m, rad, s, bps**, present in the equations that describe those phenomena'.

The results obtained can be applied in medicine and pharmacology, because each harmful virus is characterized by a dual, adsorption - emission, radiative spectrum, and each vaccine or drug created against the virus, has its own radiative spectrum, which interferes destructively / lethally with the radiative adsorption spectrum of the virus, due to the quantum-gravitational and subquantum, kinetic, electrostatic and resonance effects, discovered in Sub-quantum Digital Physics.

The technologies available today allow those who know Sub-quantum Digital Physics to measure, generate and control any type of harmful radiation, generated by viruses, or useful radiation generated by the immune system, vaccines, drugs and food, which can protect human health against any virus.

Keywords: *quantum gravity, globular velocity, spin wave-force, digital thermo-photon, digital electron, digital proton, digital neutron, fundamental quantum radiation, universal sub-quantum radiation, anti-virus lethal radiation.*

1. Quantitative constants and physical equations reanalyzed qualitatively

'Digital physics', having as its object the subquantum component of the Subatomic Universe, beyond Planck's constant, complementary to 'the Quantum Physics', was actually born when they were discovered in the data resulting from measurements of black body radiation, both 'the fundamental quantum particle' (FQP), the **Quanton**, which composes the 'fundamental quantum radiation' (FQR), and the **Bason**, which composes the 'universal subquantum radiation' (USR), using 'the method of identifying the physical entities participating in the analyzed phenomena, by the natural units of measurement present in the equations that describe them', created quantitatively, previously, by other brilliant researchers: **Thomson** (1897) who measured the mass and electric charge of the Electron ¹; **Lorentz** (1899) who proved the mass essence of the magnetism; **Beckmann, Rubens, Lummer, Pringsheim** and **Kurlbaum** (1898-1899) who measured the blackbody radiations ²; **Planck** (1900-1901) who calculated the wave energy E_i

¹ **Thomson** J.J., (1897), *Cathode rays*, Philosophical Magazine, 44, 293.

² **Beckmann** H.. Inaug-Dissert. Tübingen, 1898; **Rubens** H., Wied. Ann. 1899, 69, 582; **Lummer** O., **Pringsheim** E., Verhandl. Deutsch. Phys. Ges., 1900, 2, 163; **Rubens** H., **Kurlbaum** F.. Sitzungsber. Akad. Wiss. Berlin, 1900, 929.

during each second, generated by the Photon radiations, and its spectral density, h ³; **Abraham** (1903) who proved 'the mass essence of the electrical charge'⁴; **Einstein** (1905) who defined 'inner mobile inertial mass – outer wave oenergy equivalence'⁵; **Compton** (1923) who measured 'the length of the waves generated by the Electron within outer propagation medium'⁶, and many others,

$$\begin{aligned} \text{Lorentz Eq.:} & \quad (\mu_0/4\pi)e^2 = m_e r_e = 2.56696944774 \times 10^{-45} \text{ kg.m} & (1.1) \\ \text{Planck Eq.:} & \quad E_i = h f_i \quad \mathbf{J} & (1.2.1) \\ \text{written thus, too:} & \quad E_i = hc/\lambda_i \quad \mathbf{J} & (1.2.2) \\ \text{Planck Eq.:} & \quad h = E_i / f_i = 6.6260693 \times 10^{-34} \text{ J/Hz} & (1.3.1) \\ \text{written thus, too:} & \quad h = E_i \lambda_i / c \quad \mathbf{J/Hz} & (1.3.2) \\ \text{resulting the constant:} & \quad E_i \lambda_i = hc = 1.9864456023 \times 10^{-25} \text{ J.m} & (1.4) \\ \text{Abraham Eq.:} & \quad e^2 / 4\pi\epsilon_0 = m_e c^2 r_e = 2.3070772558 \times 10^{-28} \text{ J.m} & (1.5) \\ \text{written thus, too:} & \quad e^2/4\pi\epsilon_0 r_e = m_e c^2 = E_e = 8.18710506546 \times 10^{-14} \text{ J} & (1.6) \\ \text{Einstein Eq.:} & \quad E_o = m_o c^2 \quad \mathbf{J} & (1.7) \\ \text{written for Electron:} & \quad E_e = m_e c^2 = h f_e \quad \mathbf{J} & (1.8) \\ \text{resulting:} & \quad f_e = m_e c^2 / h = 1.23558909 \times 10^{20} \text{ s}^{-1} \equiv \mathbf{bps} & (1.9) \\ \text{Compton Eq.:} & \quad \lambda_e = h / m_e c = 2.4263102367 \times 10^{-12} \text{ m} & (1.10.1) \\ \text{written thus, too:} & \quad \lambda_e = c / f_e \quad \mathbf{m} & (1.10.2) \end{aligned}$$

where: $e = 1.6021766208 \times 10^{-19} \text{ C}$; $\epsilon_0 = 8.854187817 \times 10^{-12} \text{ F/m}$; $m_e = 0.910938291 \times 10^{-30} \text{ kg}$;
 $c = 2.99792458 \times 10^8 \text{ m/s}$; $r_e = 2.81794 \times 10^{-15} \text{ m}$; $1/\mu_0 = 7.957747154 \times 10^5 \text{ F.m.s}^{-2}$.

2. Discoveries of the 'Elementary Energy Quantum', 'FQR' and 'Quantum Waves'

Observation 2.1: The first digital physical entities were discovered in 1974, when we observed that the data E_i and f_i , resulting from rigorous measurements of black body radiation, prove that the photons of radiation are pulsating mass structures at the frequencies f_i , and that **Planck's** equation (1.2.1) may be written in the following digital form, too:

$$E_i = h f_i = (1s \cdot h_q) (n_i / 1s) = n_i h_q \quad (2.1)$$

$$\text{where:} \quad f_i = n_i / 1s \quad (2.2)$$

n_i being 'the number of cycles of adsorption - emission of 'elementary energy quantum' h_q , in interaction with the external environment, by the photons of radiation i ,

$$h_q = h / (1s) = 6.6260693 \times 10^{-34} \text{ kg.m}^2 \cdot \text{s}^{-2} \quad (2.3)$$

Observation 2.2: The presence of the radiation-speed c , in the equations (1.5), (1.6), (1.8), (1.9) and (1.10.1) proves, without error, that c radiation speed belongs to a '**fundamental quantum**

³ Planck, M., *On the Theory of the Energy Distribution Law of the Normal Spectrum*, Verhandl. Dtsch. phys. Ges., 1900; Planck, M., 1901, *Ueber das gesetz der energieverteilung im normalspectrum (On the law of distribution of energy in the normal spectrum)*: Annalen der Physik, v. 309, no. 3, p. 553-560.

⁴ Abraham M., (1903), *Prinzipien der Dynamic des electrons (Dynamical principles of the Electron)*, 1903.

⁵ Einstein, A. (1905), "Ist die Trägheit eines Körpers von seinem Energieinhalt abhängig?" (*Does the inertia of a body depend upon its energy-content?*), Annalen der Physik, **18** (13): 639-643.

⁶ Compton H. A., "A Quantum Theory of the Scattering of X-rays by Light Elements," The Physical Review, Vol. 21, No. 5, (1923).

radiation' (FQR), composed by '*fundamental quantum particles*'⁷(FQP), named '*Quantons*', each having the mass given by:

$$m_q = m_e/n_e = 7.372497201 \times 10^{-51} \text{ kg} \quad (2.4)$$

The Equation (2.1) proves that a number n_i of free Quantons are intercepted and scattered by each photon and each elementary particle, during each second, in the form of '*quantum waves*' at the frequency f_i and the wavelength λ_i .⁸:

$$\lambda_i = c/f_i \quad (2.5)$$

In order for the above equations created by **Abraham, Einstein and Compton**, although '*quantitatively correct*', applied to the elementary particles to become '*qualitatively error-free*', we replaced the '*analogic masses*', m_i , with the '*digital masses*', $n_i m_q$, according to the new '*mass digital equations*'⁹:

$$m_i = n_i m_q \quad (2.6)$$

$$n_i = m_i / m_q \quad (2.7)$$

Observation 2.3: The above equations (2.6) and (2.7) prove the Einstein's equivalence of both '*the inner mobile inertial mass – outer wave energy equivalence*', given by the digital equivalence equation:

$$n_i m_q (v_o/\alpha)^2 = n_i m_q c^2 \quad (2.8)$$

where: the left side term of the equation expresses the internal energy of the n_i gravitationally bound Quantons, both in angular motion at the cluster velocity (v_o), around the axis of motion of the photon or the elementary particle having the radius r_i , given by:

$$v_o = 2\pi f_i r_i \quad (2.9)$$

as well as in the spin motion around its own axes for energy conservation (the factor $1/\alpha$) in the initial adsorption process, at the transition from '*radiation speed*' c to '*cluster speed*' v_o , given by the equivalence equation:

$$v_o/\alpha = c \quad (2.10)$$

$$\alpha = v_o/c = 1/137.035999139 \quad (2.11)$$

and the right side term of the equation expresses the external energy of the free n_i Quantons, scattered at velocity c in the form of quantum waves at the frequency f_i and the length λ_i .

Observation 2.4: The mass value of Quantons according to equation (2.4), being over 10^{20} times smaller than the masses of the elementary particles, which compose the sensors of measuring instruments, their individual observation is impossible due to dimensional incompatibility, but their existence and physical characteristics are proved free errors, as they result exclusively from data and physical characteristics rigorously measured by other brilliant researchers.

The '*principle of the dimensional incompatibility*' has been demonstrated in the proton accelerators, where only many combinations of protons/electrons/positrons fragments, which resulted from collisions, have individually detected, but no '*subquantum particle*'.

⁷ Şomacescu I., Şomăcescu A., *The fundamental quantum particle generates gravitation*, Paper-Report to the **GE-2 Sympos.** (Proc. Interdiscip. Res. on the Phys. Phenomena), ICPE, Bucharest, Mai-1982, Section 3, poz.3.15.

⁸ Şomacescu I., *The fundamental quantum particle*, Proc. Of 10th Int. Conf. on Gravity, Padova, Italy (1983) 1019.

⁹ Şomacescu I., *From Analogical to Digital Physics*, Bucharest (2018), ISBN 978-973-0-28204-7.

3. Discovery the natural essence of the electric charge

Observation 3.1: The fact that the ratio between the electric charge e and the product $(n_e m_q c)$, is an universal constant without dimensions:

$$e/n_e m_q c = 4\pi/3 \alpha k_e \quad (3.1)$$

proves without error, that the electric charge is expressed ‘*qualitatively*’ in (kg.m.s^{-1}) , according to the following digital equation ¹⁰:

$$e = (4\pi/3) (n_e m_q c) / \alpha k_e = (4\pi/3) (n_e m_q c^2 / v_0 k_e) = 1.6021765314 \times 10^{-19} \text{ kg m s}^{-1} \quad (3.2)$$

resulting from the Einstein’s principle of the *equivalence of both the inner inertial mass - outer wave energy*, given by the equation:

$$(e v_0) k_e = (4\pi/3) n_e m_q c^2 \quad (3.3)$$

where: $k_e = (4\pi/3) (n_e m_q c) / \alpha e = 0.978413757228 \quad (3.4)$

is the recoil effect of the Electron, in the process of collisions with the n_e free Quantons intercepted in the FQR at speed c , during each second.

Observation 3.2: The geometric factor $(4\pi/3)$ and equation (2.9) applied to the Electron:

$$v_0 = 2\pi f_i r_i = 2\pi f_e r_e \quad (3.5)$$

prove that all bound Quantons n_e in the Electron spin around both their own axes to conserve energy from the ‘*free state to the bound state*’, and the axis of motion of the Electron, at the ‘*angular globular-velocity*’ v_0 , form ‘*a dynamic globular layer*’ of radius r_e .

Observation 3.3: The presence of the energy conservation factor $(1/\alpha)$ in the equation (3.2) proves that electrical interaction is generated only within the spin-motion layer of the n_e bound Quantons inner electron, in interaction with the n_e free Quantons inner electrostatic waves from other electrical particles.

From equation (3.2) it results that the elementary electric charge is in reality ‘*the mass momentum transmitted by the n_e bound Quantons inner electron to the n_e free Quantons intercepted / scattered during each second, in the Universal Quantum Radiation*’.

The digital equations for the other two electrical constants are given by:

- the globular mass density, $\epsilon_0 = (4\pi/3 \alpha k_e)^2 n_e m_q / 4\pi r_e = 8.854187817 \times 10^{-12} \text{ kg / (m.rad)} \quad (3.6)$

- the spin force transmited to waves, $1/\mu_0 = [(4\pi/3 \alpha k_e)^2 n_e m_q / 4\pi r_e] c^2 \text{ (kg.m.s}^{-2}) / \text{rad} \quad (3.7)$

4. Discovery the natural essence of the subquantum digital gravity

Observation 4.1: The fact that gravity, between the bound Quantons inner all elementary particles, is permanently attractive, proves that:

a) - all elementary particles composed of Quantons are sunken inner an ‘*Universal Basic Radiation*’ (UBR), populated by the Basic Subquantum Particles (BSP) named ‘*Basons*’;

b) - the free Basons at the radiation speed c , jostle the Quantons one to other caused by the reciprocal shielding, where, because a pressure deficit between they, acts the generalized Arhimeede’s kinetic principle ‘*A body sunken inner a fluid, will be continuously jostled to the smaller pressure direction*’;

¹⁰ Șomănescu I., *A new available energy source*, Bucharest (2007), ISBN 978-973-0-05413-2, p.50 (updated).

c) - the Basons are indivisible subquantum particles which, in the bound state, compose all the kinetic clusters named '*Quantons*'.

The stability of the Electron in interaction with FQR, when it is collided by a free Quanton, is given by the balance of gravitational energy between the n_e bound Quantons in the Electron, on the one hand, and the energy of the intercepted/scattered one free Quanton, according to '*the quantum digital stability equation*':

$$G(n_e m_q)^2 / r_q = m_q c^2 = h_q \quad (4.1)$$

from which results the radius of Quanton given by the digital equation:

$$r_q = G(n_e m_q)^2 / h_q = 0.83582113772 \times 10^{-37} \text{ m} \quad (4.2)$$

The stability of the Electron in interaction with UBR, when any of the bound Quanton is collided with one free Bason, is given by the balance between the gravitational energy that binds the collided Quanton with the other ($n_e - 1 =$ round n_e) bound Quantons, on the one hand, and the h_b energy of the intercepted free Bason, according to '*the basic digital stability equation*':

$$G m_q (n_e m_q) / r_q = h_b = 5.36268032175 \times 10^{-54} \text{ kg.m}^2 \text{ s}^{-2} \quad (4.3)$$

'*The subquantising factor of gravity*' in relation to the electrical interaction is given by the equation:

$$n_q = h_q / h_b = n_e = 1.23558909024 \times 10^{20} \quad (4.4)$$

which results in the following characteristics at the subatomic level of the Universe:

$$f_q = n_q / (1s) = f_e = 1.23558909024 \times 10^{20} \text{ s}^{-1} \equiv \text{bps} \quad (4.5)$$

$$\lambda_q = c / f_q = \lambda_e = 2.4263102367 \times 10^{-12} \text{ [m]} \quad (4.6)$$

$$m_b = m_q / n_b = 5.966787226624 \times 10^{-71} \text{ kg} \quad (4.7)$$

$$G = h_q r_q / (n_q m_q)^2 = 6.67408 \times 10^{-11} \text{ kg}^{-1} \cdot \text{m}^3 \text{ s}^{-2} \quad (4.8)$$

Observation 4.2: Equations (4.4), (4.5) and (4.6) prove that there is a digital resonance between FQR and the Electron/positron: the same frequencies, $f_q = f_e$, the same quantum-subquantum numbers, $n_q = n_e$, and the same wavelengths, $\lambda_q = \lambda_e$.

This '*universal digital resonance*' explains both the existence of only the two electric polarizations caused by the direction of angular motion at velocity v_o of the '*bound Quantons*' on the globular layer of the Electron/Positron, which generates attraction or repulsion between the electric particles, and the '*electric neutrality*' of the particles that do not possess this isochronism.

Observation 4.3: The digital equation (4.8) proves that subquantum gravity interaction acts only between bound Quantons layer inner photons and elementary particles.

5. The natural essence of the inertia mass.

A quasi-stationary quantum particle intercepts / scatters cyclic n_o free Quantons in FQR at speed c , appertained to an imaginary stationary reference point inner that particle. When the particle moves at the translation velocity v , in the direction $\theta = \theta$, in relation to the FQR considered stationary, behind it appears a pressure deficit which is compensated by the Arhimede's effect of pressure kinetic equalization at velocity c , by attaching / capturing an additional number of Quantons, according to the **Einstein's** equivalence principle.

The initial n_o number of Quantons becomes n_v , and the inner and outer energies of the particle change as a function of velocity, according to the equivalence equation:

$$n_v m_q c^2 = n_o m_q c^2 + n_v m_q v^2/2 \quad (5.1)$$

where the variation of the moving mass of the particle as a function of velocity results, according to the equation:

$$n_v m_q = n_o m_q / (1 - v^2/2 c^2) = n_o m_q k_v \quad (5.2)$$

where '*natural velocity factor*', k_v , for the variation of the mass with the speed of movement in relation to the FQR considered stationary, is given by the equation:

$$k_v = 1/(1 - v^2/2 c^2) \quad (5.3)$$

where: $k_v = 2$ for $v = c$, but quantitative identical to the **Einstein's** relativistic formula for $v \ll c$:

$$k_r = 1/(1 - v^2/c^2)^{1/2} \quad (5.4)$$

The equation (5.2) shows that the '*gravitational mass*' transmitted at a distance by the quantum waves generated by the Quantum Particles (QP), increases with the speed of motion as the '*inertia mass*', only in the sense of the elementary particle's displacement, only during its movement.

Observation 5: Doubling the inertia mass of photons at velocity c , as shown in equation (5.3) of natural relativity, has been demonstrated experimentally by using the photoelectric effect as a renewable source of electricity.

6. Discovery the binary digital structure of the Proton

The experiments made during 1967-1973 years, by *Taylor (SLAC)* and *Friedman-Kendall (MIT)*, where accelerated electron fascicles collided with target Protons, have demonstrated, based on the distribution of energies and spreading angles, that some electrons collided with a 'protonic - neutron', with a radius r_{np} of approximately 10^{-18} m, situated inside the Proton, and with a '*protonic - Electron*', i.e. '*Positron*', with a globular shape around to the protonic-neutron having the radius r_{e+} equal to the Electron radius r_e :

$$r_{e+} = r_e = 2.81794 \times 10^{-15} \text{ m} \quad (6.1)$$

Based on those measurements ($m_p = 1.672621898 \times 10^{-27}$), we wrote the following equations for the protonic-neutron and the protonic-electron (Positron) ¹¹:

$$m_{np} = m_p - m_{e+} = 1.6717107746 \times 10^{-27} \text{ kg} \quad (6.2)$$

$$n_{np} = m_{np}/m_q = 2.2674962268 \times 10^{23} \quad (6.3)$$

$$f_{np} = n_{np}/(1s) = 2.2674962268 \times 10^{23} \text{ s}^{-1} \equiv \text{bps} \quad (6.4)$$

$$\lambda_{np} = c/f_{np} = 1.322129909 \times 10^{-15} \text{ m} \quad (6.5)$$

The equivalent radius of the kinetic cluster ' n_p ' considered to be in the stationary situation, is given by:

$$r_{np} = \alpha \lambda_{np}/2\pi = 1.5355345442 \times 10^{-18} \text{ m} \quad (6.6)$$

resulted from the inner dynamic stability in relation to the partner Positron, where the globular momentum of the n_{np} bound Quantons at the globular cluster speed, v_o , is equal to the positron wave momentum (*the charge +e*), given by the digital stability of electrical neutrality equation:

$$n_{np} m_q v_o / (\pm \pi) \alpha k_{np} = n_{np} m_q c / (\pm \pi) k_{np} = \pm e \quad (6.7)$$

where: $k_{np} = n_{np} m_q c / \pi e = 0.995684 \quad (6.8)$

is the recoil effect from the scattering of free Quantons intercepted by the protonic-neutron.

¹¹ Șomărescu I., *Subatomic Universe*, Bucharest (2004), ISBN 973-0-03716-7, p.39-43.

The ‘*phase switch factor*’, $(\pm\pi)$, in the equation (6.7) proves that during one half orbital cycle, the electrostatic waves generated by ‘*protonic neutron*’ have a positive polarization, corresponding to the $(+\pi)$ radians, followed by a negative polarization during the other half digital cycle, thereby resulting the electric neutrality per entire orbital cycle.

The electrical neutrality equation for Neutron ($m_n = 1.67492747 \times 10^{-27}$ kg) is given by:

$$\mathbf{n}_n \mathbf{m}_q \mathbf{v}_o / (\pm\pi) \alpha \mathbf{k}_n = \mathbf{n}_n \mathbf{m}_q \mathbf{c} / (\pm\pi) \mathbf{k}_n = \pm e \quad (6.9)$$

$$n_n = m_n / m_q = 2.271859078865 \times 10^{23} \quad (6.10)$$

where: $\mathbf{n}_n \mathbf{m}_q$ is the Neutron digital mass of both Quantons: the globular bound and the free waves;

$$\mathbf{k}_n = n_n m_q c / \pi e = \mathbf{0.9976} \quad (6.11)$$

is the recoil effect from the scattering of free Quantons intercepted by the neutron.

Observation 6.1: The electric neutrality of the Neutron is like ‘*spin – electric dipol neutrality*’ of the Hydrogen atom, published in 1979 year as the first equation¹² which proves ‘*the mass - electric charge equivalence*’: $(\mathbf{n}_e + \mathbf{n}_p) \mathbf{m}_q \mathbf{c} / (\pm\pi) \mathbf{k}_{(e+p)} = \pm e$ (6.12)

where: $(\mathbf{n}_e + \mathbf{n}_p) \mathbf{m}_q = m_H = m_e + m_p = 1.67353283629 \times 10^{-27}$ kg (6.13)

$$\mathbf{k}_{(e+p)} = (\mathbf{n}_e + \mathbf{n}_p) \mathbf{m}_q \mathbf{c} / \pi e = 0.996769 \quad (6.14)$$

$$\mathbf{n}_p = m_p / m_q = 2.268731818268 \times 10^{23} \quad (6.15)$$

$\mathbf{k}_{(e+p)}$ is the recoil effect from the scattering of free Quantons intercepted by the atom’s particles.

Observation 6.2: ‘*The dipolar digital equations*’ (6.9), (6.12), (6.13), (6.14), and them sum, are ‘*invariable*’ for all neutrons and all electron-proton pairs within any atom type.

7. Discovery the natural essence of strong digital nuclear forces and heat

Observation 7: The absence of electric repulsion between Protons inside atomic nuclei proves that the distances between Protons are smaller than the length of electric waves, λ_e , where the electric waves which transmit the repulsion force are missing, too.

There continues instead the ‘*quantum gravity*’ given by the reciprocal shielding of the nucleons in interaction with the free Quantons of the UQ Radiation, whose constant \mathbf{G}_q results from the equation of equivalence of quantum gravity:

$$\mathbf{G}_q (\mathbf{n}_e m_q)^2 = (e^2 / 4\pi \epsilon_0) = 2.3070772558 \times 10^{-28} \text{ kg} \cdot \mathbf{m}^3 \mathbf{s}^{-2} \quad (7.1)$$

$$\mathbf{G}_q = (e^2 / 4\pi \epsilon_0) / (\mathbf{n}_e m_q)^2 = 2.78025217887 \times 10^{32} \text{ kg}^{-1} \cdot \mathbf{m}^3 \mathbf{s}^{-2} \quad (7.2)$$

The equation of Q-gravity equivalence for 2 ‘*Protons*’ ($\mathbf{n}_{e+np} m_q = 1.672621713 \times 10^{-27}$ kg), is given by:

$$\mathbf{G}_q (\mathbf{n}_{e+np} m_q)^2 = 7.778209749 \times 10^{-22} \text{ kg} \cdot \mathbf{m}^3 \mathbf{s}^{-2} \quad (7.3)$$

The equation of Q-gravity equivalence for one ‘*protonic-Electron*’/Positron ($\mathbf{n}_{e+m_q} = 0.910938291 \times 10^{-30}$ kg) and ‘*protonic - Neutron*’ ($\mathbf{n}_{np} m_q = 1.6717107746 \times 10^{-27}$ kg), is given by:

$$\mathbf{G}_q (\mathbf{n}_{e+m_q}) (\mathbf{n}_{np} m_q) = 4.2338385142 \times 10^{-25} \text{ kg} \cdot \mathbf{m}^3 \mathbf{s}^{-2} \quad (7.4)$$

These results prove that ‘*the strong nuclear forces*’ are in essence ‘*Quantum Gravity*’ from interaction between hard nucleons, which is about 10^6 times stronger than the equivalent electrical

¹² Şomacescu I., Şomacescu A., *Gravitația și Transporturile (Gravity and Transports)*, C.Z. 636:53, IV, Revista Transporturilor și Telecomunicațiilor nr.1, 1979, pag. 1, equation (1.4).

interactions given by equation (7.1).

A similar equation can be written for 'the weak atomic force which is the attractive interaction between electrons and the captured radiative photons, which become **thermo-photons**'¹³, at distances $R < \lambda_e$: $\mathbf{G}_q (n_e m_q) (\mathbf{n}_i m_q) / R^2 = (2.532638175354 \times 10^2) (n_i m_q) / R^2 \text{ kg.m.s}^{-2}$ (7.5)

8. The first application of the research: the photonic superconductivity of optical fibers

In 1970, engineers R. Maurer, D. Keck, and P. Schultz of Corning Glass company (USA), invented round optical fiber (FO), with a diameter of 62.5 microns, equal to the natural silk fiber, having an optical signal attenuation of about 99% per km (20 dB/km), with a transmission up to maximum 4 km, of the '*multi-mode*' signal in the visible spectrum (633 nanometers), patented under the name "*optical waveguide fibers*" (patent no. 3,711,262).

Decrease such attenuation have been solved by means both innovative and fundamental research, which we begun in 1974, consisting in: a) determination of the frequency signal, \mathbf{f}_γ , which ensures the '*energetic resonance of the photons with the peripheral electrons of the Silicon atom in the optical fiber*'; b) - determination of the diameter of the optical fiber, (\mathbf{D}_{FO}), which ensures the '*synphasing of photons in the reflective points*' inside the FO, regardless of its length¹⁴.

In order to obtain the photons *synphasing* in the reflexive points, we put two known conditions in optical engineering: i) - the angle of incidence, φ , to be equal to the reflex angle in the reflexive points, and ii) - the distance traveled by the photon between two successive reflexive points, ($\mathbf{D}_{FO} / \cos \varphi$), divided at the wave path over that distance, ($\lambda_\gamma / \cos \varphi$), must be 2π radians, writing the following equation:

$$(\mathbf{D}_{FO} / \cos \varphi) / (\lambda_\gamma / \cos \varphi) = 2\pi \quad (8.1)$$

which resulted in:

$$\mathbf{D}_{FO} = 2\pi \lambda_\gamma \quad (8.2)$$

Finally, the quantum number, \mathbf{n}_γ , the quantum frequency, \mathbf{f}_γ , and the length of the quantum waves, λ_γ , of the photons passing through the optical fibers, have been given by:

$$\mathbf{n}_\gamma = n_e (\mathbf{v}_{e(3p)} / \mathbf{c})^2 / 2 = 1.9336391916 \times 10^{14} \quad (8.3)$$

$$\mathbf{f}_\gamma = n_\gamma / (1s) = 1.9336391916 \times 10^{14} \text{ bps} \quad (8.4)$$

$$\lambda_\gamma = \mathbf{c} / \mathbf{f}_\gamma = 1.55 \times 10^{-6} \text{ m}; (\equiv 1550 \text{ nanometers}) \quad (8.5)$$

where:

$$\mathbf{v}_{e(3p)} = \mathbf{v}_{e(3p)} = v_o / (4\pi/3) k_{Si} = 0.53037888 \times 10^6 \text{ m.rad.s}^{-1} \quad (8.6)$$

is the speed of the two peripheral electrons in the (3p) orbital layer of the Silicon atom;

$$k_{Si} = 1 - (2\pi/3)\alpha = 0.98471646 \quad (8.7)$$

In Dec. 1978, NTT engineers Ibaraki Lab. confirmed the attainment, the effect of superconductivity (reduction of optical signal attenuation to 0.2 db / km), using signals with wavelengths of 1550 nm, accordingly to the results from the research expressed by the above equations.

In 1996, MCI engineers commissioned the **TAT-12/13 Transatlantic Transmission System** at a capacity of 5 Gbps, which allowed the explosive development of the Internet world-wide, using superconductivity FO - optical window with the central lamda 1550 nm/0,2 dB/ km, based on the symphasing of the reflections and on the diameter $\mathbf{D}_{FO} = 2\pi\lambda_\gamma$.

¹³; Şomăcescu I., *New Physical Knowledge about Nature*, 2019, ISBN 978-973-0-29685-3: using the same energy conservation factor ($1/\alpha$) above shown at the Observation 2.3 for the bound Quantons.

¹⁴ Şomăcescu I., *The fundamental quantum particle allows to know the effect of photon superconductivity of the optical fibres*, Scientific Com. Session (1975) , ICPTTc, Bucureşti, Engineering Section, pos. 2.3.

9. Possible applications in Medicine and Pharmacology

The cells of living bodies are composed of matter condensed into solid, liquid and gaseous clusters and ‘*thermo-phonic clusters attached quantum-gravitationally to atomic electrons*’, combined each other according to the genetic code, which, in an uninterrupted dynamic equilibrium, adsorb, and emit radiation in accordance with their atomic-molecular structures, obtaining the energy necessary for the functioning, movement and development / multiplication, from the fission/ decomposition and fusion of the food consumed.

The technologies available today can identify the radiative emission spectra of microorganisms of any kind, and can create small portable detectors capable of alerting anyone to the presence of dangerous viruses.

Thermo-radiative decontamination technologies can also be created, respectively dry sterilization (with infrared radiation), of spaces in schools, hospitals, offices, workshops, hotels, restaurants, commercial spaces, means of transport, and so on.

Technologies for the identification of lethal radiation spectrum for viruses, generated by certain foods, plants, drugs, vaccines or metals, can be created through research.

It is known that infrared radiation from the blood heated by the immune system, 2-3 degrees above normal body temperature in a fever, radiation from foods such as honey and garlic, or hot air inhaled in saunas, or from hot teas, is lethal to most viruses and is the main natural weapon for the defense of the human immune system, which can be strengthened with the help of radiative technologies based on knowledge of the essence of the phenomena presented in this Report.

10. Instead of conclusions

Based on the knowledge of the Nature behind the Planck’s constant, I am believing that the climatic and health phenomena, which increasingly threaten people's lives, can be controlled at a reasonably acceptable level, only if we endeavor together to know their natural essence in depth.

Thanks in advance to the organizers of the “*Med2Pharm’s Int. Conf.*” Sep. 2020 at Prague, for the kindness in trying to find a way to communicate this e-Report to the honorable participants in this remarkable international scientific event.

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