Less Known Results on the Solar System

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> MOTTO: "The reality is always not what you see; local things/facts must be put also into their global context/meaning" H. Dumitrescu

Abstract: *For a two half millennium evolution of knowledge from the Democrit's natural, rational atomized material conception to the Newtonian, Maxwellian, Einsteinian mathematized physics, the research in the most cases has followed a deductive route from observable facts/reality according to the Mach's rigorous positivism principle. During the last century both experimental and computational technology progress has accumulated a solid factual datum support on the better knowledge of our actual world, so that the research is beginning on inductive route of the hidden/dark detailed processes as a whole. This revolutionary stage of physics, based on a holistic integral approach, is concerned with the relativity-gravity evolution in a quantifiable space-time universe created after the morphogenetic light explosion (or the 4D-BIG BANG). The paper presented herein contains some less known aspects on the work of solar system as a whole, along with the specific activity of the Earth-planet as a part integrated into the solar complex.*

Key Words: *The genuinely quantum gravity, gravitational tidal waves, double refraction of light, global warming, astrophysics*

1. INTRODUCTION

The eternally/timeless regenerative/renewable universe is the co-occurring relationship between the fluctuating light and concomitantly refrigeration hot matter under light effects. The Universe as a proper name defines in terms of partially overlapping scenarios as its temperature decreases while avoiding any static picture or model of same. Such a picture of the regenerative solar system is described further. It is importance to make at the onset a clear distinction between the moving bodies with a gravitational and processional-like behavior and the fast hidden, near inertia less, processes of a statistical thermal nature. The latter refers to space-time evolutions of elementary particles with gravitational side-effects of an electromagnetical and thermal nature. The post-morphogenetic light shock planetary motions of heavy bodies/planets are governed by the cosmic relationships among moving bodies,

where the gravitational and precessional effects on the relativity of their evolutions along with vital consequences of the stability and global warming, are less known.

The space-time planetary motions are intrinsically connected with a kinetic inertial triad (momentum, kinetic energy and power) and a thermodynamic one (ρ, p, T (K)), engendered by the solar activity, i.e. fluctuating light speed ($\tilde{c}$), Sun's regenerating mass (M_o) and gravity (G_o), viewed as a braking acceleration by the successive percussion of mass at the fluctuating light speed, which occurs polarized light (its double refraction).

The hidden subtle meaning of solar gravity is its quantization by the fast double refrigeration effect of warm mass (its hardening) associated with the decrease of light speed (or cool light), that explains the external planetary chain (or Jovian) of cool planets and the internal planetary chain (or Terrestrial) of warm planets, closer the Sun.

Both quantized gravity and absolute temperature are reciprocally modulated (the absolute temperature (K)-gravity equivalence hypothesis).

The quantized gravity is tightly wrapped/pressed around self-embodying matter as an envelope of body; the quantized gravity is the material surface/ "crust" of all bodies, which separates the space-time structured material universe from an unknown, space-time structure less, measureless universe.

Thereby the gravity is a physical surface/contact property of all bodies, their surface tension depending on the curvature of a Sun-planet interface, i.e. the distance from Sun and its local thermodynamic state.

In the present work, the Sun's power (work per unit time) Wo,

$$W_o \equiv \left(M_o \tilde{G}_o \right) \tilde{c},$$

in watts, along with the spark momentum

$$I_o \equiv M_o c_S, \; c_S = 10^{10} m/s \text{-spark speed},$$

(both entities are valid in non-relativistic and relativistic meaning) are conserved (the regeneration hypothesis) via the cross relationship
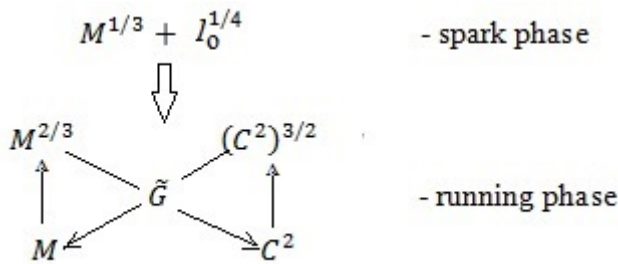

Figure 1 – The solar regenerative cycle ($M^{2/3} \rightleftarrows C^2$)

where the gravity $\tilde{G}_O$ is a reactive energetic bundle produced by the quantum fluctuation of light.

The generative mass cycle M goes on until the extinction of the covariant gravitational cross-quantum cycle, $\tilde{G}_O=$, where $M^{1/3}$ is the regenerating mass and $M^{2/3}$ is the energetic stock mass. The bivariant cross matrix (Fig. 1) illustrates the mass/heat energy-kinetic energy/light cyclical change engendered by the light, in a cosmic vortex tub confined by spinning planets and their orbits around the Sun.

The main physical phenomena of a vortex tube kind, where a moving gas conserves its enthalpy in a moving frame of reference, describe the temperature separation between a cold vortex periphery and a warm vortex core, fully explained with the work of Euler (Euler's turbine equation).

The work of Euler along with the fluctuating light speed as a solar whirl velocity is the Sun's work converted into heat by the planetary rotor (rotating planets) at the cold end. The planetary bodies (as spheres/globes) immersed into the cosmic thermodynamic field of light speed, float at some fixed orbital levels/distances from the Sun (Kepler-Bode's Law), sustained by Archimedes like buoyancy forces of a thermal nature, acting towards the heliostrophic center, i.e. the gravity (G_o) and/ or thermodynamic pole (the gravity-temperature (K) equivalence).

The cosmic whirl tube, engendered by the planetary motion of the sun, is a parallel or uni-flux type that comprises the entrance block of inlet nozzles of geostationary planets (Mercury, Venus), a vortex tube of faster rotating planets (Earth, $V_{rot} = 465$ m/s and Mars, $V_{rot} = 241$ m/s) and a cone-shaped valve with a central orifice of cool planet chain.

Unlike the more known counter-flow version (the Ranque-Hilsh standard vortex tube), the cold hydrogen exit is located concentrically with the annular inlet for the hot carbon dioxide (Venus) and air (Earth) [1], [2]. The concentrations of CO_2 – phase and air – phase vary continuously through the division surface phase from those of the interior of one phase to those of the interior of the other.

2. THE MORPHOGENESIS AND SYNTHESIS OF HEAVY MASS

The morphogenesis and synthesis of heavy mass to spherical shape and hardened mass refers to planets by the incorporation of gravity into mass as its temperature decreases. This is a fast physical complex process there the unknown measureless, space-time structureless universe becomes a regenerative structured material universe. The ingredients of such a regenerative material universe contain a mixture of thermal energy (heat) and kinetic energy (light velocity) compressed into a galactic space at a temperature below the ignition point of the mixture (the triple point, T_3, of matter) and the light-ignition speed (spark speed) with the aid of a big bang like percussion/shock produced by the spark light. The percussion at light speed regulates the (2/3+1/3) proportion of regenerative unit process as 1/3 renewable warm mass and 2/3 stored cool mass given by the Gaussian statistical distribution.

The solar system is located in the Orion Arm at a distance of 2/3 (3 x 10^4 light-years) from the galactic center of the Wilky Way galaxy operating after a regenerative two-stroke cycle shown above in Fig. 1.

The model of solar regenerative cycle is universal for all stellar bodies (or bright stars), the specific difference is given by the extent of stellar galaxies from the matter aggregated around stars determining their magnitude. The operation of a spark-light regenerative cycle of quantized mass involves the dynamics of triple mutual covariant fields:

1) The natural quantum light field produced by light speed, engendering a double spot-light flux: warm regime ($c_w = 3$ x 10^9 m/s) and cool regime ($c_c = 5$ x 10^8 m/s), as the result of the double refraction property of light;
2) The cross quantized gravity field produced by the double-refrigeration process of hot materials during the synthesis of quantifiable mass as moving heavy/hard bodies, viewed as planets orbiting around the Sun;
3) The thermodynamic field (ρ, p, T) provides the conversion of kinetic into internal/mass energy, which produces hot gases at the hot inlet (the Venus planet), Fig. 2.
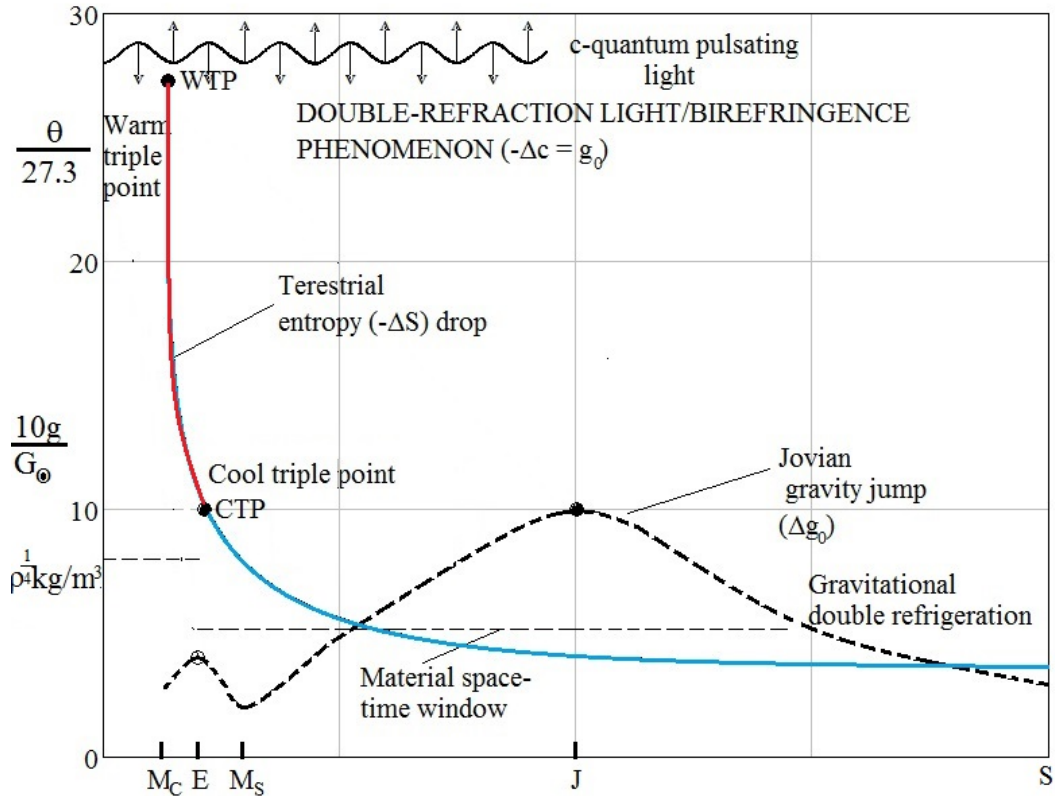
Figure 2 – The bifocal gravity of solar system (double refrigeration): o- Earth $g_E = 10$ m/s^2; ● - Jupiter $g_J = e \times 10$ m/s^2.

The thermodynamic field around the moving planets plays an electromagnetic wave-like role, important for the composition of their atmosphere, particularly for the Earth, the only planet known to harbor life and to regenerate organic materials, Fig. 3. The solar cycle operates on the physical principle of a two vortex tube [2] based on the temperature separation between a cold/ external vortex (cool backward Uranus-planet) and a warm internal vortex (warm Venus-backward planet).

The back scattering of the spark-light radiates energy into a kind of back-pressure turbine formed by the warm planet chain which compresses atmospheric hydrogen (H_2) and refrigerates the cool planets along with their hardening for the storage and retrieval/recovery energy system.

3. THE OBJECTIVE AND PHENOMENOLOGICAL REALITY

During the last century both experimental and computational technology progress have accumulated solid factual data support on the better knowledge of our actual world. But, the avalanche of results doesn't also mean a better knowledge of involved processes, need a contextual and unitary interpretation for their deeper understanding. The existentialist problem of gravitational phenomenon have long been hidden by the Einsteinian confused space-time theory of gravity. For the organic materials including human race, the gravity fixes their biological half-life through a critical thermodynamic field, controlled by the terrestrial gravitational linkage, Fig. 3.
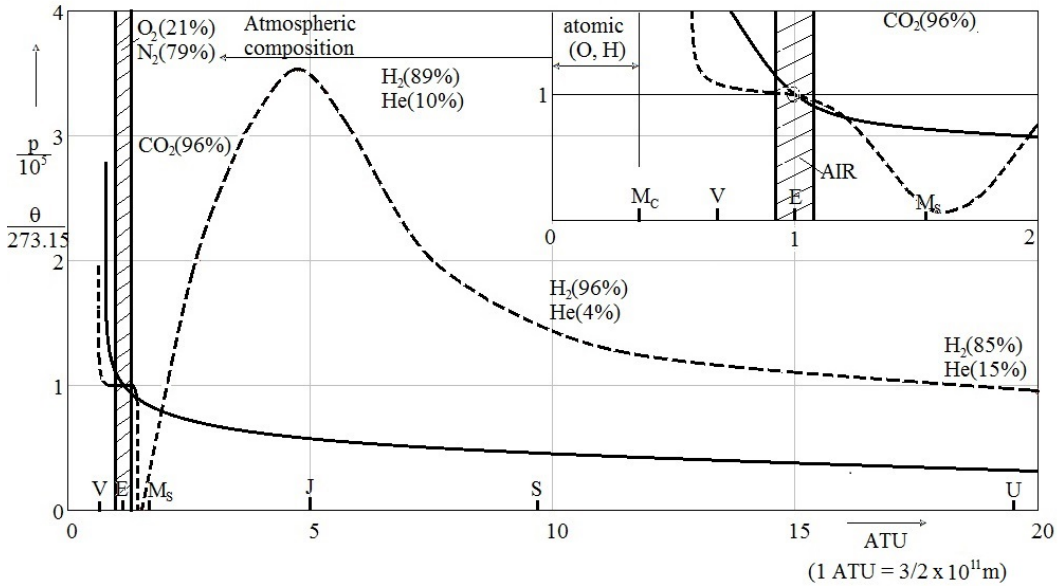
Figure 3 – Critical Early thermodynamics (*p, T, composition*) for organic materials:
——— Temperature (K), $\theta/273.15$
-------- Pressure (Pa), $p/10^5$

Briefly on every level of understanding, the gravity is a heliostrophic deviating force of a Coriolis force type [3-5], the outcome of the refrigeration process of hot matter/lava regularly evacuated through successive thermonuclear explosions/percussions occurred in bright stars at the light speed of $c_s = 10^{10}$ m/s (light spark/ignition). The gravity viewed as a braking acceleration (m/s^2) of light measures the refrigeration velocity of lava as this hardens/solidifies and as a rule takes diverse spherical shapes like mercury drops/balls. Such a huge material balls are the planets orbiting around the generator star, herein the sun. The planetary bodies float into the back-atmosphere (*p, T*) of the solar explosions, the so-called cosmic wind, sustained by Archimedes like buoyancy forces. The gravitational field in this way engendered exists as a quantized gravity field of rotating planets and pressure and thermal stream line field, similarly to the internal electromagnetic field.

All astral bodies self-contain their genetic heritage by two specific bulk properties: a) quantized gravity (g), a surface/contact tension related to pressure of spot-light flux: short phase ($g_0 \equiv g_E$, for the terrestrial planets) and long phase ($5/2 g_0 \equiv g_J$, for the Jovian planets), and b) density (ρ) is the gravitational volume of the whole solar system: warm regenerating planets, $\rho_w = \frac{g_0}{2}\bar{G}_0 = 5 \times 10^3 Kg/m^3$, and cool disembodying planets $\rho_c = g_0^{1/4}\bar{G}_0 \cong 3/2 \times 10^3 Kg/m^3$, $(\bar{G}_0 = \frac{G_{0min}+G_{0max}}{2} = (e + e^2) \times 10^2)$ [6]. The density of a material volume is a quick mass and $\frac{\rho_c}{\rho_w}$ is a refrigeration index that shows the compression of light.

The objective reality refers to Mach's elimination principle of any non-observable and non-measurable thing, depending on the scale/measure used. The usual astronomical scale, based on the mean distance of the Earth from the Sun as astronomical unit (1 ATU = 3/2 x 10^{11} m), is too small for a detailed phenomenological investigation outside the internal terrestrial sphere, at a range of more than 2 ATU. Far from the ensemble of solar system, inside the external Jovian sphere, the distance of the Jupiter from the Sun is used as a larger Jovian scale more suitable to analysis the activity of cool planets (1 AJU = 3/4 x 10^{12} m).

The light polarization concomitantly with the material refrigeration is a bivariant process creating a bifocal gravitational field, with the focus located at Earther and Jupiter, its interactions depending on the distance from the Sun, called depth of field. The light polarization and material refrigeration effects related to the absorption of radiant light energy by refrigerating matter into the gravitational field cause optical disturbance called spherical/curvature aberration (or stereoscopical aberration). The optical aberration is important for the interpretation of experimental data at large astronomical distances because of a scale effect. The astronomical scale effect is shown in Fig. 4.

The phenomenological reality relies on observation of experimental data and a physically holistic interpretation: The earlier astronomical data have been reduced to the simple succession of astrophysical characteristics of planets, without a reference to their operation viewed as a whole within the regenerative solar system. This holistic approach proposes instead of the Einsteinian frozen universe model, a regenerative material universe model along with gravitational/quantum cellular structures of light field, consistent with our solar system.
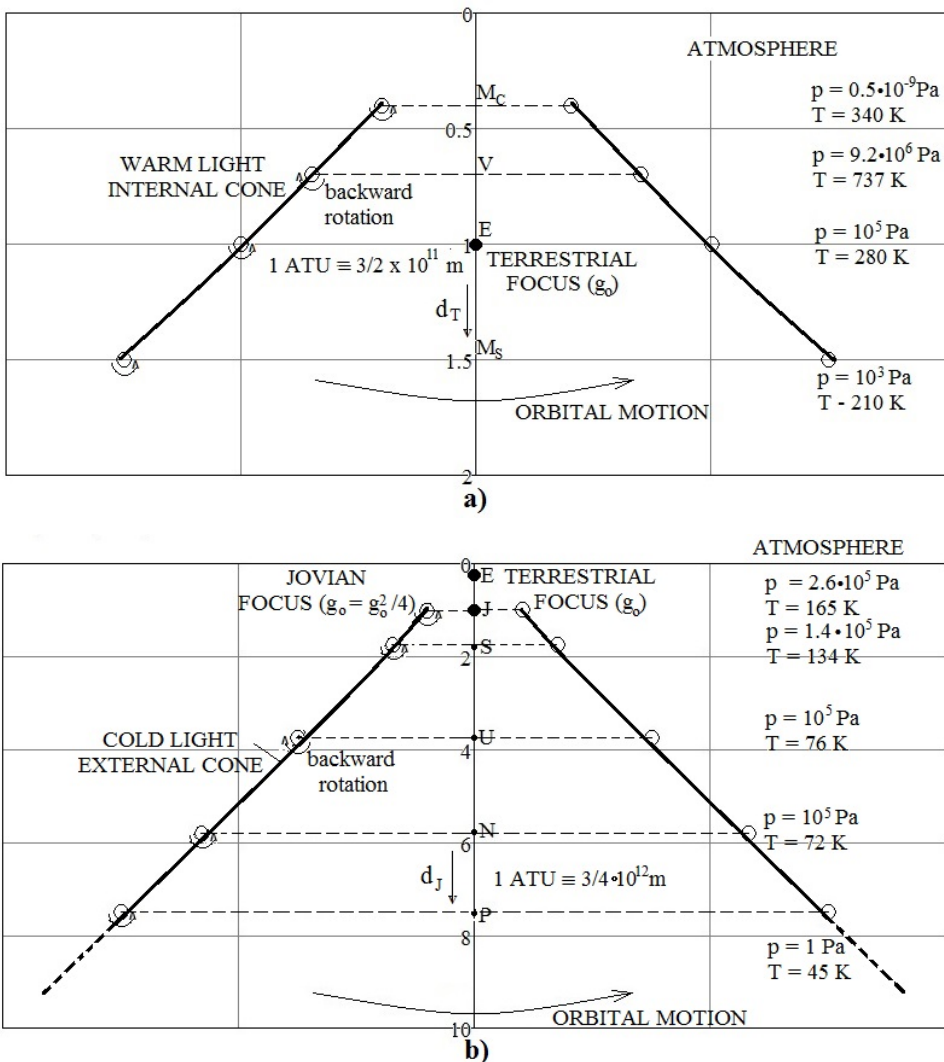

Figure 4 – The astronomical scales of solar system: a) small terrestrial scale $d_T = 3/2 \cdot 10^{11}$ m; b) large Jovian scale $d_J = 3/4 \cdot 10^{12}$ m

The phenomenological description of the radial heat pumping mechanism of the solar cogenerative system operating as a vortex tube that enables the separation of compressed gas stream into a low total temperature region and a high one, is shown in the sequel. Such a separation of the flow into regions of low and high total temperature is referred to as the temperature (or energy) separation effect, Fig. 5. The smaller cold exit gives higher back pressure in the vortex tube, resulting in low temperature separation (the slow refrigeration of cool planets). The considerable pressure drop near the inlet region leads to low tangential velocities (backward rotating Venus planet) and hence high temperature separation (the fast refrigeration of warm planets). The point (temperature T_s), at the end of fast refrigeration shows the triple equilibrium state involving the coexistence of three different phases of the system (CO_2, H_2, $CO_2 - H_2$ blend) engendered for a certain fixed composition/proportion regenerating organic matter around the Earthly gravitational forces. The regeneration material cycle is a stochastic process, usually BIRTH-AND-DEATH process (BD), which describes a "population" the members of which may "die" or "give birth" to new individuals. Besides the energetic cycle (or warm loop), there is an intrinsic gravitational cycle (or warm-cool loop/linkange), which reflects the invariance of the gravitational field, the so-called helicity. The gravitational helicity can be given in a natural quantum formulation [6] as:

$$(e \times 10^2)^{1/4} \quad \rightleftarrows \quad (e^2 \times 10)^{1/3}.$$

Physically, the gravitational cycle is a refrigerator cycle based on the reversed Rankine cycle using the operation) of double refrigeration of back-solar explosions (or a heat pump) [7]. The holistic cogenerative field approach

$$(M^{\frac{2}{3}} \quad \rightleftarrows \quad c^2, \ (e \times 10^2)^{1/4} \quad \rightleftarrows \quad (e^2 \times 10)^{1/3}),$$

is illustrated in Fig. 5 as against the Einsteinian bulk covariant field theory ($E = M c^2$).

4. THE MODELLING OF REALITY

The relativity between the physical/natural reality and modeled one, frequently expressed as "the reality is not what it seems", refers to the accuracy of the mathematized physical model since a physical phenomenon is/exists in itself oneself but its model can be more or less well approximated. Such phenomenon is the gravitational cooperative phenomena well predicted during the Newtonian time, but now wrongly understood, considered a relative phenomenon on accounts of its space variation responsible for a complex property of relative regenerating matter of the Earth, only astronomical object know to harbor life. The double refraction of light flux when crossing an anisotropic material medium produces its separation/polarization components associated with different velocities within the medium and bending (or the change of curvature) of light to carry the shear with minimum material. The optical property of light polarization explains the spherical shape of planets and their structure. The light bending and concomitantly spherical shaping of lava, produce twisted/ torsion and hardened material as its temperature decreases. Both twisting and hardening of hot material/lava is quantized by two physical material properties measurable as density (mass per unit volume) and gravity (surface tension of curved interface of astral bodies). The bending of light produced by the back-scattering of the radiant energy into hemispheres of planets, is light absorption process as thermal energy of material, where the surface light energy is proportional to the orbital distance (R_0) from the sun, while the volume thermal energy of a refrigeration process is proportional with the orbital period (T_0). The energetic equilibrium state

$$E_{kc}(R_0^2) \; \rightleftarrows \; E_{th}(T_0^3), \tag{1}$$

is reached when $(R_0^2)^{3/2}/(T_0^3)^{2/3} = const$ with the mutual indices $n_{cr} = \frac{1}{n_{hr}} = 3/2$. ($n_{cr}$-light refraction index, n_{hr}- thermal refrigeration index).

The energetic balance condition expresses just the second law of Kepler, that involves the focal distances of bifocal gravitational and light fields, called also depth of field. The light bending is associated with the spherical aberration responsible for the orbit planets viewed by Kepler as conic sections with the sun at one focus sweeping equal areas in equal times (the first law of Kepler). The observable orbits of planets are stereographic projections described by a conformal mapping preserving angles and altering lengths and areas. The first law of Kepler in fact expresses the invariance of the light flux, the so-called spot-light flux or light flow rate (m²/s² per unit mass or its kinematic energy) [6]. This defines the light flow rate through the elliptical section of gravity

$$\Phi_L \equiv 4\pi(e \times e^2)c_s = 2.52 \times 10^{12} \sim e \times 10^{12} \text{ m}^2/\text{s}^2, \tag{2}$$

where $G_0 = e \times 10^2$ m/s² is the gravity of the sun.

The invariant light flux produces two light regimes (or phases) of natural cooperative quantum fields of the natural light-gravity bundle with the light speed of

$$C_w = \left(\frac{R_{OE}^3}{T_{OE}^2}\right)^{\frac{1}{2}} = 2 \times 10^9 \text{ m/s for terrestrial warm planets}, \tag{3a}$$

and

$$C_c = n_{thr}\left(\frac{R_{OJ}^3}{T_{OJ}^2}\right)^{\frac{1}{2}} = 6 \times 10^8 \text{ m/s with } n_{thr} = 1/3, \tag{3b}$$

the slow refrigeration index, for Jovian cool planets owing to their increased eigenrotation (or a more intense precessional effect).

The cooperative phenomenon of gravity is more complex than the empirical Newtonian model based on the gravitational terrestrial constant

$$C_N \equiv C_T = \frac{g_0}{d_E} = 2/3 \times 10^{-10} \text{ m}^3/\text{Kgs}^2, \tag{4}$$

where $g_0 \equiv (e + e^2)$ is the gravity unit of the light gravity cooperative fields, quantizated by means of a natural quartile, $\{e, e^2, 10, 10^2\}$ or $\{e, e^2, g_0, g_0^2\}$, and $d_E = 3/2 \times 10^{11}$ is the mean distance of the Earth from the sun ($d_E \equiv 1 \ ATU$ - astronomical terrestrial unit), also called the depth of gravitational field.

Using the above natural quartile, the solar gravitational field can be described as follows:

Table 1 – THE COMPARED GRAVITY MODELS

A) TERRESTRIAL GRAVITATIONAL FIELD/ NETWORK

		quantum model	double scale method	exp.
Mercury	$g_{Mc} = e^{4/3}$	3.794 m/s²	3.86	(3.7)
Venus	$g_V = e + e/2$	8.748 m/s²	8.6	(8.87)
Earth	$g_E \equiv g_0 = e \cdot e^2/2$	10.04 m/s²	10	(9.806)
Mars	$g_E \equiv g_0/e$	3.715 m/s²	3.78	(3.72)

B)   JOVIAN GRAVITATIONAL FIELD/ NETWORK

		quantum model	double scale	exp.
Jupiter	$g_J = \left(\dfrac{3}{2}g_0 + g_0\right)$	25 m/s^2	25.95	(24.79)
Saturn	$g_S = \dfrac{g_J}{3} + e^{2/3}$	10.28 m/s^2	10.73	(10.44)
Uranus	$g_U \equiv \dfrac{g_J}{3}$	8.33 m/s^2	11.57	(8.69)
Neptune	$g_N \equiv \dfrac{g_J}{3} + e$	11.05 m/s^2	12.67	(11.15)
Pluto	$g_P = \dfrac{e^2}{g_0}$	0.74 m/s^2	0.72	(0.62

The natural quantum description is consistent with the astronomical measured data. The dynamics of solar bifocal gravitational field follows a refrigerator like cycle based on a reversed Rankine cycle, quantum described as, Fig. 5.

$$(e \times 10^2)^{1/4} \ \rightleftharpoons \ (e^2 \times 10)^{1/3}, \tag{5}$$

The solar reversed Rankine cycle has the highest efficiency of the 2/3. The distances of planets from the sun can be correlated with their gravitational values the so-called depths of field (Bode's Law of the quartile {1, 2, 3, 4}.
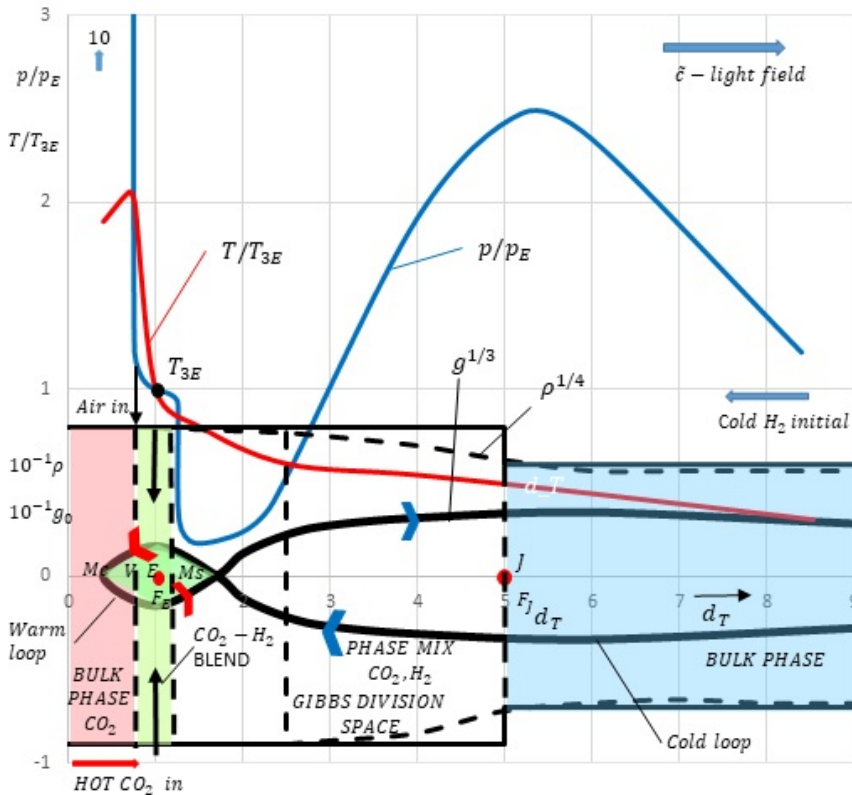

Figure 5 – The energetic model of vortex tube for the Solar cogeneration system with initial mass and momentum conservation

The term depth is used in photography for the distance over which satisfactory definition is obtained when a lens is in focus for a certain distance (herein the bifocal gravity field, $1 \equiv d_T = 3/2 \times 10^{11}$ m and $1 \equiv d_J = 3/4 \times 10^{12}$ m, $(d_J/d_T = 5)$.

Alternative equivalent (with comparable accuracy) method for the gravity distribution is the double scale method based on the terrestrial and Jovian astronomical scales with the focal depths of gravity field along with the corresponding universal gravitational constants of the solar system.

$$C_T = 2/3 \times 10^{-10} \text{ m}^3/\text{Kgs}^2 - \text{Newtonian/Terrestrial constant,} \tag{6a}$$

$$C_J = 1/3 \times 10^{-10} \text{ m}^3/\text{Kgs}^2 - \text{Jovian constant.} \tag{6b}$$

The universal gravitational constants along with the Boltzmann (k), Planck (h) and spark light speed (c_s) relationship [12]

$$\frac{k}{2h} = c_s \tag{7}$$

shows the unity of solar material universe, that is the unification of electromagnetic internal and gravitational external forces, the outcome of the gravity cooperative phenomena for such bivariant systems.

5. CONCLUSIONS

A holistic approach of a cogenerative material universe has been proposed, including to our solar world, as against to the Einsteinian confused covariant field theory of gravitation, without a realistic gravity and precessional relativity relationship, i.e. the lack of gravitational-precessional relationship among moving cosmic bodies.

The present regenerative material universe model is a two-stroke spark-ignition cycle at the light speed engendering cooperative fields: natural quantum fluctuating light field and the quantized gravitational thermal field. The outcome of two fields is the creation of a heliocentric like material universe. All bodies, orbiting around a bright star, are self-organized into a conservative cogenerative system like our solar system, based on precise gravitational-precessional relationships, herein illustrated for the solar case. Earth is the only planet know to generate organic material self-regenerating into different species. The outcome of Earthly organic matter is a long changing process of the whole system that is in fixed working order to self-conserve a regenerative cycle dependent on the changes of mass (regenerative mass effect) and temperature (global warming effect). Therefore the human material is a relative one depending on the whole terrestrial biosphere (both thermodinamical and inorganic state) that can be dramatically changed by the actions and/or activities of man". Both the population of almost 8 billion humans, near a critical value of 9 billion, and global warming (now an increase of $\Delta\theta = 1.2^0$ C near the critical value of $\Delta\theta_{cr} = 3^0$ C [6]) are effects associated with extreme climatic changes showing an unstable hydrostatic equilibrium and the beginning of a decline period for the human race.

Besides the above existentialist conditions the main result of this study is the natural cogenerative cycle model proposed for the back-scattering of radiant energy cooperative phenomena based on the gravity-light covariant quantum fields:

    1) natural quantum fluctuating light field

$$M^{2/3} \underset{\longleftarrow}{\overset{\longrightarrow}{\rule{2cm}{0pt}}} c^2, \text{ generating mass (precessional relative effect)}$$

2)   natural quantum gravity field (with e – germ)

$(e \times 10^2) \xrightleftharpoons{} (e^2 \times 10)^{1/3}$, gravitational timeless bundle

(until the extinction of pulsating light) as against the Einsteinian bulk covariant field theory $E = M c^2$, [8], [9], [10]. The existing critical conditions for such a regenerative mechanism shows that a cycle in working out of order is back again in good operation only after the self-regulation of perturbated state, known as Lovelock's Gaia theory [11], [12].

The conservative material universe is a gravitational space-time structured universe, backward scatter-light speed, moving through a black hole of the unknown measureless/non-measurable universe.

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