The Truth on Gravity and Terrestrial Global Warming
Part II: The Regenerative Mass

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MOTTO: "The torsion-free matter conjugates to infinity in the space-time structureless system; the space-time structure is the main precessional effect of twisted matter or gravitized mass". H. Dumitrescu

Abstract: *The parabolic gravitized space $\{Rs, Re\} = e^{3/2} Ker^{-1}(3/4) \cdot (10^{10}-10^{12})m$, back-scattering of radiant energy at the onset of light, or the depth of gravity field, engenders a thermodynamic field upon caustic developable surfaces characterized by certain caustic developable polar (twisted) curves, where the surrounding of their tangent lines (or rulings) envelop embodied matter or gravitized mass. In contrast to the gravity polarization (Ker = ¾) of photon nature (e, e^2, e^3), occurring reversible cyclical processes with excess energy, the thermal polarization (Ker = 2/3) can produce cross exchanges of heat, matter and work with the surrounding area in the inverse order, i.e. in a reversed cycle, only in the case of microscopic atomic-molecular structures of statistical nature (principle of the microscopic reversibility). At the macroscale, such a reciprocating mass process, together with its conservation, is possible only for self-regenerating matter processes. The relative mass concept and invariance of regenerative mass process along with its frozen metastable equilibrium are considered, including the time quantization (clock's law) as the half-life of mass (gravitized matter).*

Key Words: *Regenerative material systems, polarization of light, quantum-gravity inversion, thermal field and invariance of molecular mass, thermal inversion (anti-gravity), caustic of gravitational "lenses" (meniscus lens or sagittal foci)*

1. INTRODUCTION

The fundamental problem of contemporary theoretical physics is the unification of the physical forces in a simple, all-encompassing coherent theory of everything which is easily understandable.

Referring to the physical force, there are strong (nuclear hard- bond), electromagnetic (atomic bond), weak (nuclear disintegration) and weakest (molecular gravity bond)

interactions, the last of them characterizing the metastable equilibrium of material structures at the molecular scale during the light spark-ignition.

From the very beginning, it is important to make a clear distinction between the material fine microstructure, at the atomic scale, coming from a purely quantum mechanical treatment [1-6], and the material microstructure at the molecular scale, which relies on a small number of measurable properties (such as gravity, temperature, pressure and photosynthesis) of self-regenerating molecular structures, where the thermomolecular interaction is a natural quantum-gravity bond, considered in the sequel.

The previous quantum mechanical approach, including the excessively mathematized non-realist Einstein's theory [7-9], hides the physical essence of the cooperative gravity phenomena produced by the onset of light into an unbounded space, i.e. light like a "hammer" [10, 11]. Herein the results of gravity field from the first part [10] are summarized as follows.

The invariance of focused light (or luminous flux) reflects the constancy of light flow rate produced by (e, e^2, e^3) natural photon-light activity, i.e. back-scattering and focusing their mutual interaction captured by the parabolic caustic surface, formed at the spark-ignition speed. This endless photon mechanism engendering steady radiant energy can be described by the quantum-gravity ponderomotion relationships of light

$$\Phi_L = e^{3/2} \cdot 10^{12} \frac{m^2}{s^3}, \qquad \text{the constant light flow rate,} \tag{1}$$

$$(e^2 \cdot 10)^{\frac{1}{3}} \Longleftrightarrow (e \cdot 10^2)^{\frac{1}{4}}, \text{the quantum} - \text{gravity ponderomotion} \tag{2}$$
$$\text{(the gravity linkage).}$$

The intrinsic Eqs. 1 describing the quantum-gravity relativistic mode of the well-known non-relativistic conservation of momentum and angular momentum, is the timeless gravitational phenomenon of light.

Eq. 2 is a quantum dipole (e) – dipole (e^2) interaction given by the cross bond of their moments μ_q, $(e^2 \cdot g_0)$ in$^{1/3}$ and $(e \cdot g_0^2)$ out1$^{/4}$ with a weak hysteresis,

$$\eta_q = \frac{\mu_{q,out}}{\mu_{q,in}} = 0.9676, \qquad \text{the quantum gravity efficiency.} \tag{3}$$

Figure 1 shows the quantum-gravity linkage that is a twisted border surface between electromagnetic and gravitational fields.

The point $(2/3 \cdot g_0)$ marks the maximum photon fluctuation $(\tilde{\varepsilon}_{max} = \frac{\sqrt{2}}{2} ln2)$, localizing the borderline between the gravity and ultraviolet electromagnetic fields, the surrounding cold focus. The point $(1/2 \cdot g_0)$ makes the minimum photon fluctuation $(\tilde{\varepsilon}_{min} = e^{\frac{3}{2}}/g_0 \cong 1/2)$

$$e^{\frac{3}{2}} \Longleftrightarrow g_0^{\frac{2}{3}} \leq \frac{g_0}{2}, \qquad \textbf{the quantum} - \textbf{gravity equilibrium} \tag{4}$$
$$\textbf{(floppy gravity)},$$

localizing the borderline between the gravity and infrared electromagnetic fields, the surrounding warm focus.

The gravity field absorbs the quantum fluctuations of photons (or electromagnetic waves) into two foci, braking the light speed, and functions as a protective radiation shield for the precessional processes of photon synthesis of all material structures (atomic, molecular and rotating bodies).

The quantum-gravity inversion relationships, Eqs. 2, 4, describe the cross quantum (electromagnetic) gravity (thermal) fields, represented as front and regressive waves, Fig. 1.
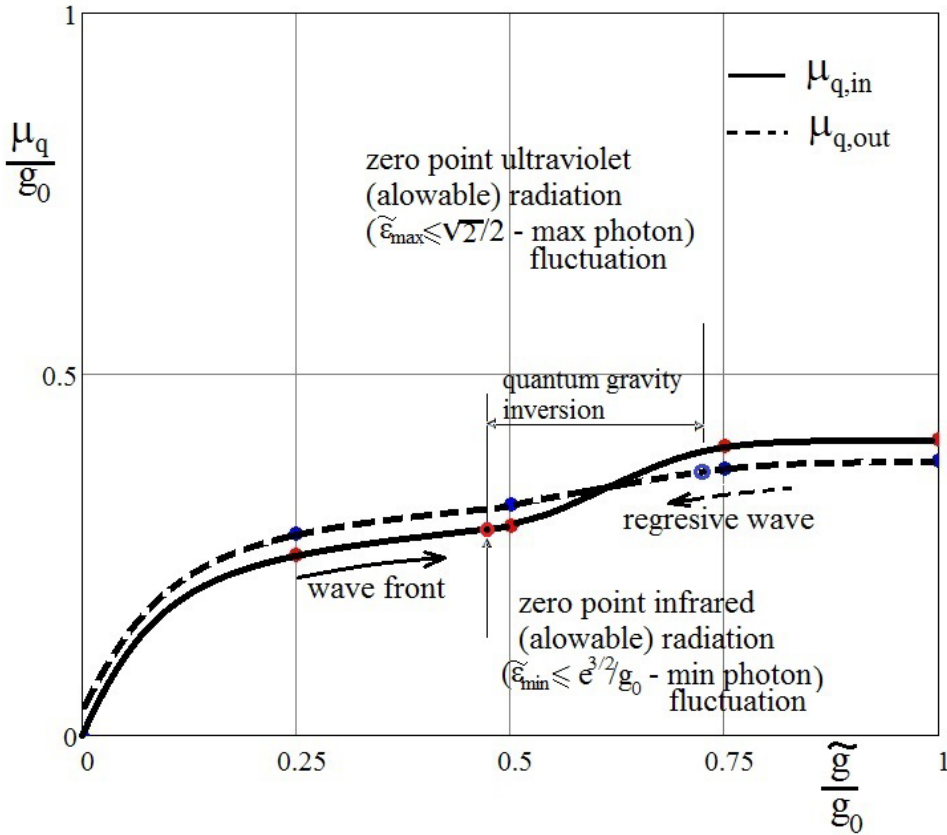

Figure 1 – The hysteresis effect of focused light (the photon circulation)

2. THE QUANTUM-GRAVITY INVERSION

The gravitization/ focusing light or simply polarization describes in a consistent way the interaction between the spark-ignition light and back-scattering of photons (light quantum: e ln $e = 1$), of their torsional vibrations engendering both electromagnetic (e-torsion) and thermic radiation (g-torsion), known as the caustic-parabolic (g-torsion) mirror (or loop) effect.

The quantum-gravity inversion quantities not only the motion of photon "particles" (e and/ or its fractions) as an esoteric gravity lump, herein the twisting gravity string along with a gravity quantum $g_0 \equiv e + e^2$, and its torsional waves, but also the electromagnetic field produced by light quantum fluctuations, eroding the gravity field along with the material structures embodying gravity at any scale, by means of the thermal anti-gravity field.

What we mean by "gravitizing" is the consistent application of certain rules, termed natural quantum laws, which explain, in the holistic way, bizarre issues from a disconnected classical physics (some see in spite of turbulence, gravity and relativity), of the common origin of all physical phenomena, that is the light hammer as spark-ignition.
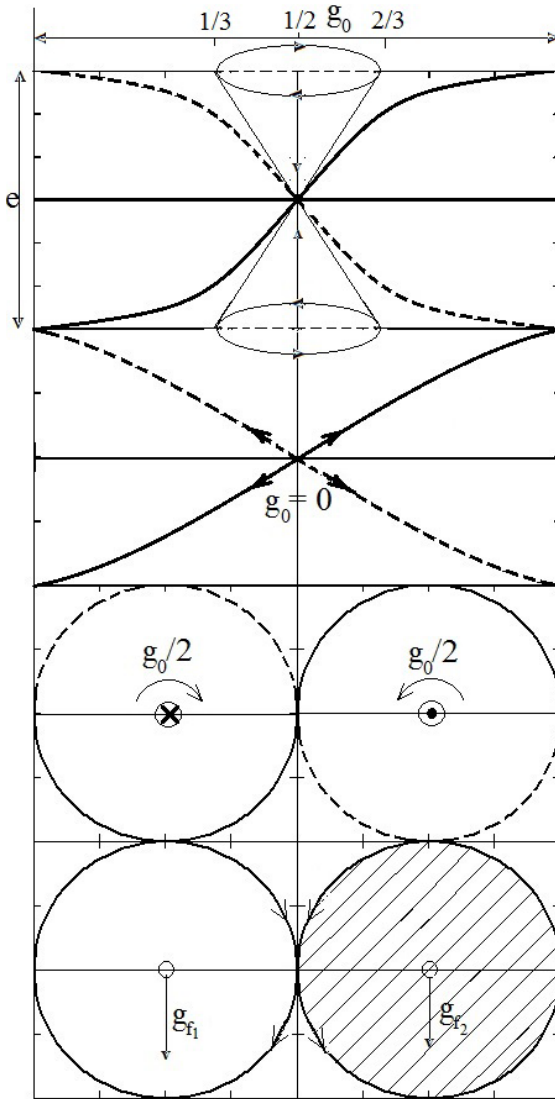
$$e^{\frac{3}{2}} \cdot g_0^{-\frac{2}{3}} = e^{-\frac{3}{2}} \cdot g_0^{\frac{2}{3}} \equiv 1$$

$$g_0 \cdot \left(e^{\frac{3}{2}} \cdot g_0^{\frac{2}{3}} \right)^{-1} \equiv 1/2$$

the local quantum-gravity inversion

$$\varepsilon \equiv \frac{\tilde{e}}{e} = e \cdot th\left(\frac{\tilde{g}}{g_0}\right),$$

(cross BC 0 - 1)

the free torsion (photon fluctuation) phase

$$\frac{\tilde{g}}{g_0} = sin\left(\frac{\pi g}{g_0}\right),$$

(cross BC 0 - 1)

the bounded torsion (gravity spring with fixed ends) phase

$$g_{f_1} = 2e^{\frac{1}{2}}\pi \cong g_0,$$

$$g_{f_2} = \frac{e\pi^2 + e^2\pi}{2} \cong (g_0/2)^2$$

the focusing/ gravitized light phase or plan (1/2) polarization with saggital foci

Figure 2 – Schematic representation of local (hyperbolic) quantum (elliptic) gravity inversion, the key reversible process of gravitized focused light

The local quantum-gravity inversion (Eq. 4) is the wave front light. By contrast with Newton's non-relativistic action-reaction law (third law) via the force concept, the quantum-gravity inversion reflects more realistically the spark ignition-light interaction. The light focusing/process (or polarization) is a complex nonlinear twisted bundle/bond at both local scale, Eq. 4, and global scale, Eq. 2. The twist/torsion bond or simply torsion is a state of deformation of a cylindrical gravity field (g_0) with plane e-photon ends in which plane cross section normal to the generators rotates through an angle which is proportional to its distance from some reference cross section, with the twisting moment zero, Fig. 2.

The local quantum-gravity bond is a reversible twisting/torsion process with torsional moment zero (pure torsion), constituting halved unit gravity and concomitantly inverted (π – rotated), whereby the photon torsional fluctuations (their fractions) (a – phase) are absorbed into sagittal foci (b, c – phases).

The light gravitization/ focusing is an absorption or filter process of electromagnetic waves which are dangerous for matter, i.e. the surrounding gravity area of the sagittal foci functions as a protective radiation shield for gravitized matter or mass.

The global quantum-gravity inversion (Eq. 2) is the regressive wave of light. As the photon (e)-photon (e^2) interaction constitutes the gravitational wave front with a bifocal gravity structure: $g_{f_1} \equiv g_0 = e + e^2, g_{f_2} = (g_0/2)^2$ (plane 1/2 - polarization), the global quantum-gravity inversion is the interaction between focal points engendering the thermal regressive wave. The thermal field is associated with the inversion (plane ¾ - polarization) with twisting moment $\neq 0$, incorporated into matter as paramagnetic (matter embodying) and diamagnetic (matter disembodying) substances. The global or thermal inversion is the outcome of a hysteretic torsional process with twisting moment $\neq 0$, whereby the bifocal gravity entails the photon circulation as both planar torsional pendulum-like (fractional photon circulation – near field) and spherical/globular pendulum-like (bounded/ gravitized photon circulation – far field) motions (polarization Ker = ½, ¾). The torsion pendulum-like motion of light photons driven by gravity field (or focused light) is illustrated in Fig. 3 a, b, c.

The geometrical aspect refers to the distance (herein rays from a point (object or image) to its corresponding focal points of the gravity field that can be photons (atomic structure) or gravity (molecular structure), viewed as a circle and/or a sphere, respectively, depending on their focusing power. The range of image distances corresponding to the range of object distances covers the depth of gravity field. The image and object distances cover the depth of gravity field. The image and object distances are congruent geometrically with surface point and volume embodied in the 3-D Euclidean space via Gauss's.

Theorema Egregium (the Gaussian curve is an intrinsic invariant of a surface) and Cavalieri principle (the reciprocity of cross section and volume for the same height-bodies).
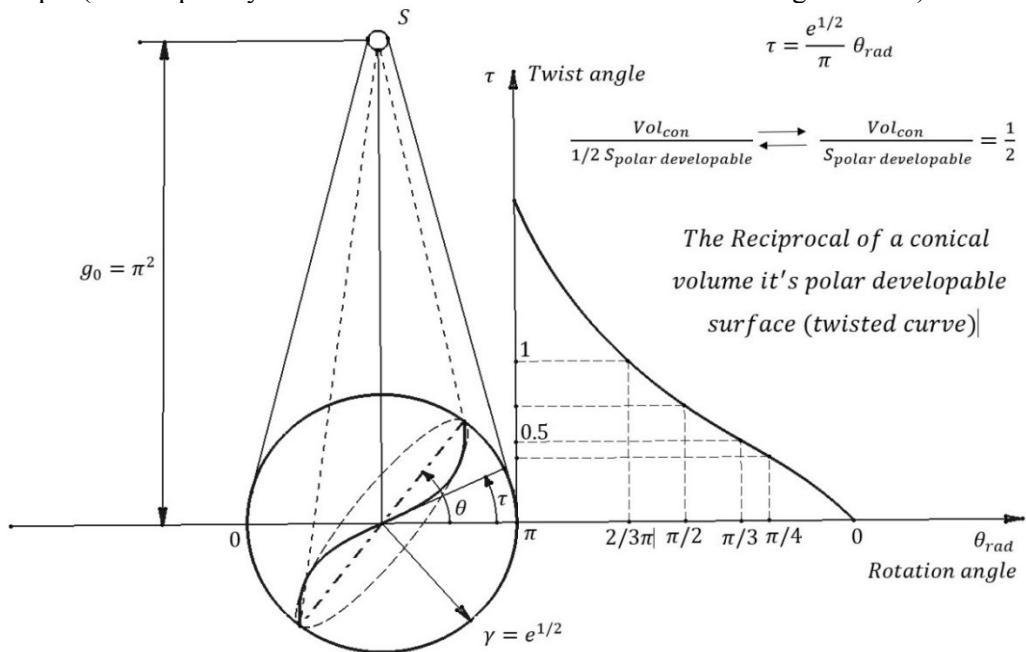
The Cavalieri's principle – The Reciprocity of
cross sections and volumes
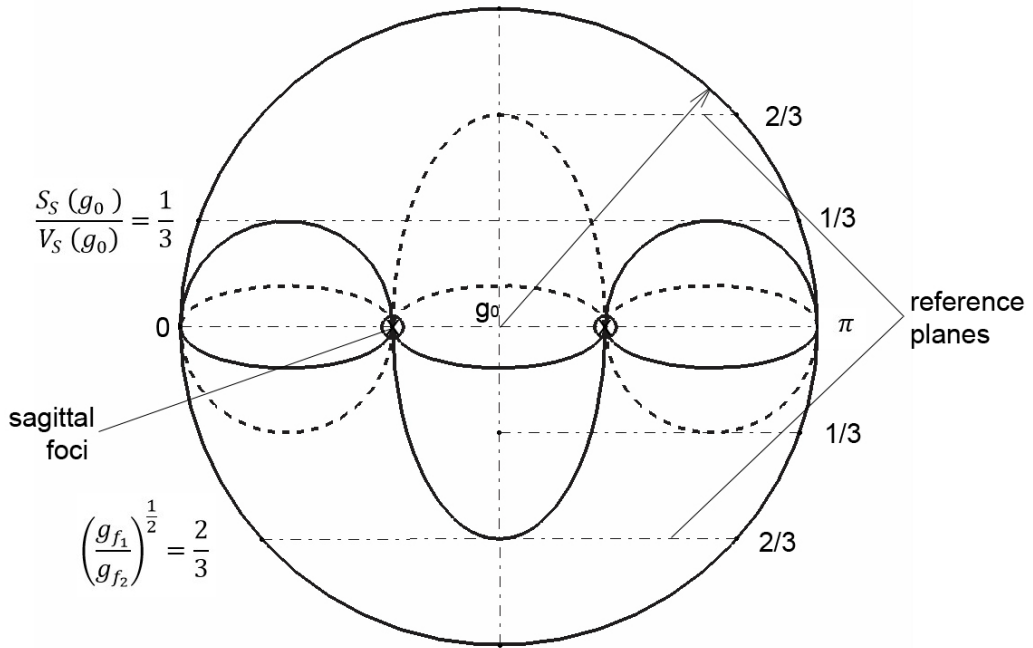*for same height − bodies*

$$\frac{S_S(g_0)}{V_S(g_0)} = \frac{1}{3}$$

$$\left(\frac{g_{f_1}}{g_{f_2}}\right)^{\frac{1}{2}} = \frac{2}{3}$$

Figure 3a – The geometrical gravitation: floppy disk ($g_{f1} = \pi^2$); yielding ball ($g_{f1}^2/g_{f2} = 4$)

The optical aspect refers to the focal points (first and second) of the gravitational "lenses" system where the object and the image points conjugate to infinity in a four-dimensional (or quantum) optical system, Fig. 3b.

The angle of projection of a gravity-like lens is measured by the f/number or relative aperture which is the ratio of the effective focal length to the diameter of the exposure (or the contraction of gravity).

The intrinsic light power produces the caustic phenomena of self-ignition or spontaneous combustion (spark-ignition) of a quantum nature, where light quantum termed as photon, $\tilde{e}$ with $\ln e = 1$ is a strong reactive entity (e – free vector).

The photons are governed by the 4-D light's law of self-sustained burning involving timeless regenerative processes of gravity, spontaneous regeneration, and matter, late regeneration as relative mass.

The regenerative gravity process, better known as light-focusing is the double refraction of light or its Ker (1/2, ¾) polarization occurring at the separation of photon into two components: twisted (2) and free - fluctuation (ln 2) as

$$e \equiv e^{2/3} \cdot e^{1/3}, \quad \text{the photon refraction} - \text{Ker}\left(\frac{1}{2}\right) \text{ polarization,} \tag{5a}$$

$$\frac{e^7}{4} \equiv \frac{e^3}{2} \cdot \frac{e^4}{2}, \text{ the gravity refraction} - \text{Ker}\left(\frac{3}{4}\right) \text{ polarization,} \tag{5b}$$

where the double (quantum-gravity) refraction of light, Eqs. 5, drives the circulation of photons surrounding focal points; the local and global quantum-gravity ponder motions, Eqs 5, constitute the 4-D quantic law of spot light.

The quantum measure of the spot-light is consistent with the standard optical measure of f/number (relative aperture).

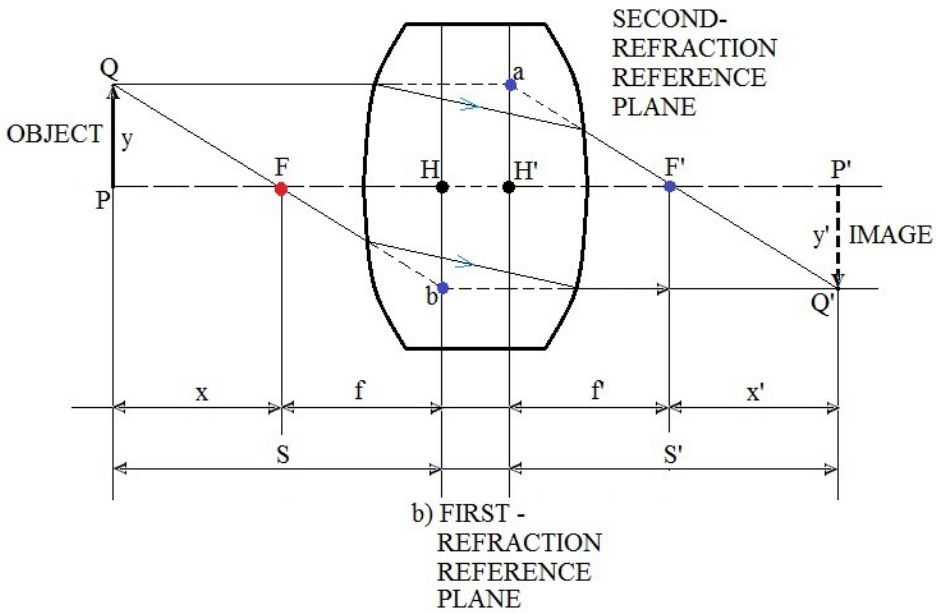| f/number	4	5.6	8	11.3	16	22	27
relative aperture	2^0	2	2^2	2^3	2^4	2^5	2^6
quantum measure	$e^{3/2}$	$2e$	e^2	$e^2\sqrt{e}$	$2e^2$	e^2	$e^4/2$
	first focus effect					sagittal foci effect	

Figure 3b – The optical gravitation ($g_{f1}\, g_{f2} \cong (2\pi e)^2$) – Gaussian optics of gravitational "thick lenses" (Newtonian-Gaussian collineation equations, x x' = f²)

The mechanical aspect refers to the kinetics of photon motions (or photon circulation) as **harmonic spinor** and **hysteretic twistor**, i.e. the back-scattering of photosynthesis products. In contrast with Penrose's spinors and twistors as spinning massless geometrical (virtual) objects [11], the result of photon polarization is spinning chargeless and massless physical particles which have distinct radiant energies (or radiations) as follows

$$E_s = h_p \phi_L = (2/3 \cdot 10^{-33})\left(e^{3/2} \cdot 10^{12}\right) \cong \pi \cdot 10^{-21}\, J,\text{ the electromagnetic (cold)}$$
$$\text{radiant energy} \tag{6a}$$

$$E_t = k_B G_\Delta = (e/2 \cdot 10^{-23})(e \cdot 10^2) \cong \pi \cdot 10^{-21}\, J,\text{ the thermal (warm) radiant}$$
$$\text{energy} \tag{6b}$$

carried by the luminous flux ϕ (Eq. 1) yielding electromagnetic waves (h_p – Plank constant) and the quantum-gravity ponder motions (Eq. 2) respectively, yielding thermal waves via the (p, T) thermodynamically field, polarized at right angles to each other, having different velocities within the medium and usually being propagated in different direction.

The common feature of both spinor and twistor as a dynamical system is the metastable equilibrium state of torsion deformation induced by the post-self-ignition of light associated with a sequential twisting process in a self-consistent regenerative system.

The spinorial motion produced by the photon polarization is its torsional oscillation which turns into the torsion-free state "*e*" when it undergoes a complete rotation through 2π.

The polarization of twisted photons ($e^{2/3} \cdot e^{1/3} \equiv e$) are surface dispersion harmonic waves on spot light that propagate at the light speed (Fig. 2a).

The twistorial motion is produced by bounded photons (or gravity string: $g_0 = e + e^2$) which turns into the torsion-free state through ant symmetrical two-stroke reciprocating cycle, ($\pm \pi$), and crosses four phases, ($\pm \pi/2$) (Fig. 3c).

Generally, the torsion can be described by the harmonic torsion (or warping) function given by a simple-valued parameter τ_t (twist angle) or light polarization index (Ker). The sequence of torsion states for a twisting process must satisfy the boundary conditions given by Wallis's integrals $W_n = \int_0^{\pi/2} sin\theta \, d\theta$, or equivalently $W_n = \int_0^{\pi/2} cos^2\theta \, d\theta$ by the substitution $\theta = \pi/2 - t$, with the initial conditions $W_0 = \pi/2$, $W_1 = 1$.

Now, Wallis's integrals can be evaluated by using Euler integral of first kind (the Beta function) and second kind (the Gamma function), supplemented by a recurrence relation giving W_n in terms of W_{n-2}

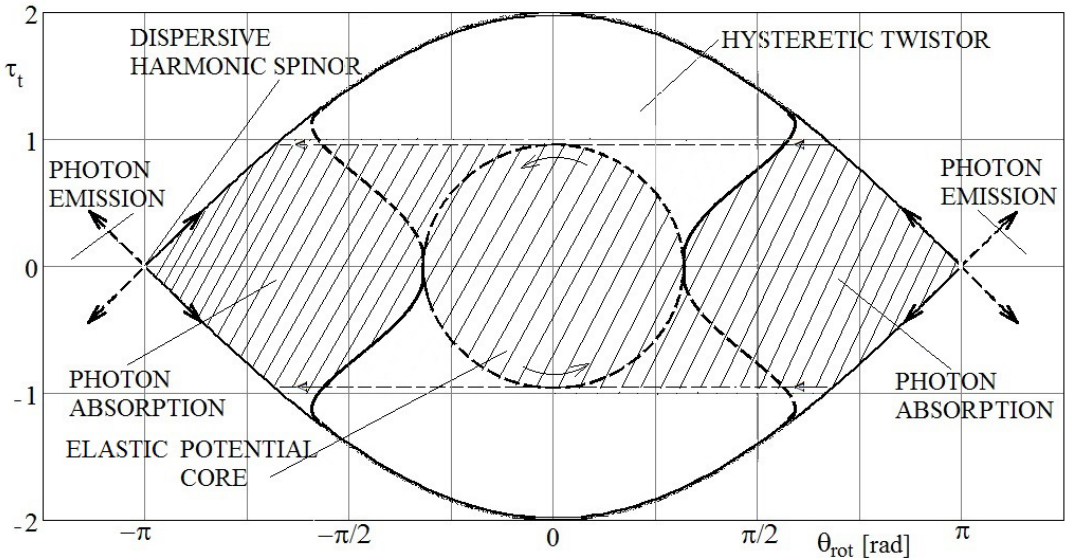$$W_n = \frac{n-1}{n} W_{n-2}, \text{ for all } n \geq 2$$

Figure 3c – The dispersive spinor and hysteretic capsular/cellular twistor (gravitational torsional oscillation damper) with wave length and frequency: $\lambda_s = (2\pi/e^{1/2})nm, v_s = C_s^2$ Hz; $\lambda_t = (\pi/e)nm, v_t = C_s$ Hz

The sequence ($W_n \equiv \tau_{tn}$) is decreasing and converges to a non-negative limit, $\tau_n \to \frac{1}{\pi}$, as

W_n	W_0	W_1	W_2	W_3	W_4	W_5	W_6	W_7	W_8	W_9	W_{10}	W_{11}	W_{12}	...	W_∞
$T_{t,n}$	$\pi/2$	1	$\pi/4$	**2/3**	$3\pi/16$	8/5	$5\pi/32$	16/35	$35\pi/256$	0.406	0.386	0.369	**0.353**		$1/\pi$

The bold values are the four eigen values of the photon torsion (or twistor).

The global quantum-gravity inversion (Eq. 2) is the late stage of embodied foci (Fig. 3a), where their mutual interaction represents a spherical pendulum-like motion, scattering spinors and twistors. The schematic diagram of location of vortex-induced separation of surface gravity creating gravitation-like meniscus-lenses is shown in Fig. 4.
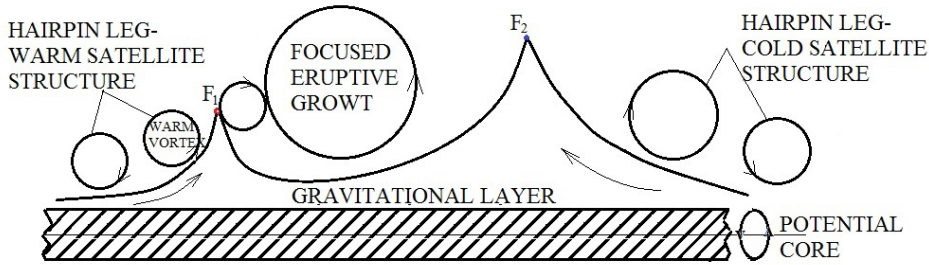

Figure 4 – Conceptual scenario of cosmic gravitational sagittal foci, as hydrodynamical hairpin structures

The gravitational torsional/twist buckling describes the mutual interactions of focal points (F1, F2) as the scattering of spinors and twistors from the constant luminous flux. The abrupt change from the stable equilibrium gravitational configuration engenders neighboring or a distant configuration with a metastable/relative equilibrium, depending on their distance from the focus. The total energy of light: $E(x(t), \dot{x}(t))$ is independent of time t and its phase equation $\varphi(x, y): x = y, \dot{y} = f(x)$ defines a vector field on the phase plane of equations φ (or the vector velocity field), where its solution is a motion $\boldsymbol{\varphi}: \boldsymbol{R} \to \boldsymbol{R^2}$ of the state of system, and the image of application φ is an orbit. The parametric equations of focal points can determine a space-time structure of a self-consistent regenerative system, the so-called canonic clock's law.

3. THE QUANTIZATION OF THE SPACE-TIME STRUCTURE

The intrinsic quantum-gravity structure of focused light described in a consistent manner as the interaction between photons (light quantum) and the quantum-gravity bundle [10] along with their ponder motions (global and local, Eqs. 2, 4) was given in §2, together with geometrical optical and mechanical illustrations of the light polarization. These are proof of the gravity congruent with the framework of unified physics.

The 4-D Euclidian space-time structure is a precessional effect of the light focusing for a constant gravity field, that can be obtained by means of a suitable conversion from the 4-D Quantum-gravitational structure. The 4-D Quantum ($2\pi/e$) – 4-D $E(x(t))$ gravitational conversion, termed **gauge bundle or gravitational gauge** is a fast rotor-translation switch via gravity as a Coriolis acceleration type. The understanding of the fast cyclical quantic motion (or photon orbit) is the key to describe kinematically each particle in the 4-D gravitational vectorial field at multitude-scales, Fig. 5.

$\langle x \rangle < 10^{-11} \, \text{m} \quad \to$
atomic particles
(spinor wave length/ de Broglie)
$\to \ \langle x \rangle < \ 10^{-7} \, \text{m}$
microparticles
(continuum – 10⁻⁶ m)

$10^{-11} < \langle x \rangle < 10^{-7} \, \text{m} \ \to$
nanoparticles (molecules)
(twistorial wave length)
$\to \ \langle x \rangle < 10^{12} \, \text{m}$
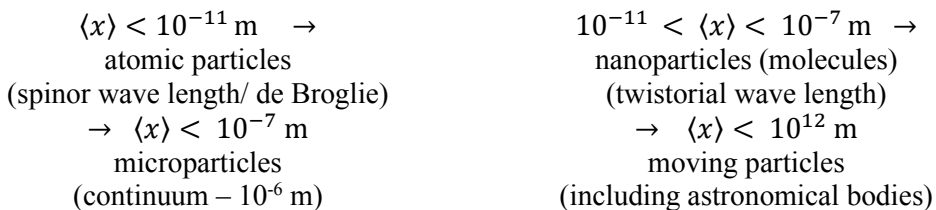moving particles
(including astronomical bodies)

Figure 5 – The gravitized matter (mass) and associated spatial scales

The 4-D Q structure ($2\pi/e$) is a massless spinning quantum structure of a wave nature engendered by the self-ignition phenomena of light (spark-ignition) and self-sustained by the activity of fluctuating photons as light quanta. These are excited to the resonance frequency at the light speed $c_s = e^{2/3}c_0$ (spark-ignition speed) and trigger off caustic oscillating phenomena associated with the release of explosive energy: quantic power ($W_q = c_0^4$ W), kinetic energy ($E_k = c_0^2$ m²/s²) and thermal equivalent energy as:

$$M_{th}^{2/3} \equiv c_0^2 \qquad\qquad M_r^{1/3} \equiv c_0$$

fastly regenerative/thermomolecular mass (white energy) \qquad slowly regenerative/relative mass (dark energy)

A priori combustion, the quantic pressure of light has accumulated energy and after that it is rapidly followed by an explosion. Generally, the light is a combustion process whereby light waves disperse the quantic disturbance (photons), propagated at different speeds, depending on their wavelength. A simple harmonic surface wave (or spot-light) is described by

$$\eta_{spot} = A\cos(kx - \omega t),$$

where k (wave number) and ω (frequency), both positive, has a wave speed

$$c = \omega/k = (g/k)^{1/2},$$

so that waves of longer wave length $\lambda = 2\pi/k$, travel faster. Herein, the local speed $c \equiv c_s$ is the velocity of the wave front (wave crest) and the velocity of travel of the group as a whole is the group/phase velocity or the global velocity of the regressive wave given by

$$c_g = \tfrac{1}{2}(g/k)^{1/2} = \tfrac{1}{2}c_s = c_0 = 10^{10} \text{ m/s}$$

where for $g = (2e^{1/2}\pi) \geq g_0 = 10$ m/s² the reactive gravity produces expansion energy waves in the whole measureless 4-DQ space, propagating across the light sphere c_0 as a group of kinetic, thermal and power waves: c_0^2, c_0^3 and c_0^4 respectively; and for $\boldsymbol{g} = \pi^2 \leq \boldsymbol{g_0}$ m/s², the delay gravity engenders torsional gravity/time waves penetrating the bounded gravitatized 4-DQ($2\pi/e$) space at different speeds and wavelength $\lambda = 2\pi/k$ ($k = 2/3$, 1/2, 1/3 – twist eigenvalues).

The 4-D Q quantic structure describes the light quantic field containing photons as the light reactive quanta bounded by a **quantum-gravity bundle** given by

a) the photon polarization (self-ignition phase) \qquad $e \equiv e^{2/3}e^{1/3} \cong 2 + \ln e$ \qquad the quantic fluctuation \qquad (7a)

b) the gravitational/regressive wave front \qquad $e + e^2 \equiv g_0$ \qquad the light focusing gravitization (the first focus) \qquad (7b)

c) the regression rate \qquad $\dfrac{e + e^2}{e^3} \equiv 1/2$ \qquad the quantic average \qquad (7c)

d) the photon regeneration (light reburning) \qquad $e^4 = e(e \cdot e^2) = (e^2 e)e$ \qquad the quantic recurrence relation \qquad (7d)

e) the light focusing/ gravitization (the second focus) \qquad $\dfrac{e^4}{2} \equiv g_1 = eg_0 \cong \left(\dfrac{g_0}{2}\right)^2$ \qquad the reciprocal of the square of foci \qquad (7e)

The photon polarization (Eq. 7a) is the start phase of the simultaneous photon-regeneration process, where a timeless quantic chain occurs.

The quantic reaction of light is less energy loss cyclic process with the maximum/optimum efficiency (or an **perpetuum mobile** state) where the photon polarization (Ker(2/3, 1/3)), conserves both size and energy of photons as: $(1/3 + 2/3) = (1/3)^2 + 2 \, (2/3)^2 \equiv 1$; the photon regeneration relationships.

The 4-DQ structure is a twisted structure featured in its inter-changeable scales (π, e) which turn into the torsion-free state after a complete rotation 2π and the following rule applies

$$\frac{\pi}{e} + \frac{e}{\pi} = 2, \tag{8}$$

called the **quantic median**, a Poisson-like ratio.

The space-time quantization is the primary precessional effect of light focusing, the outcome of the constant light flow rate (Eq. 1) and the quantic structure of gravity field (Eqs. 7), supplemented to the median rule (8) and the eigenvalues of twist angle (or the polarization kernel).

The focusing (gravitization) of light is an invariant process of a quantic nature. The space-time quantization via the quantic gravity structure is the **gravitational gauge** for a bounded structured 4-DQ space (or measurable) of the multiverse light self-consistent field.

The space quantization refers to the spot-light length and/or the depth of gravity field, measured in terrestrial units (m and AU), the only reference units known in astronomy.

The focal distances are the primary lengths followed by the relative distances from neighbor/satellite-equilibrium gravity configurations to a focal configuration.

The neighboring gravity configurations (or vertical satellites) are located around a focal point, herein the distant configurations from the metastable equilibrium focus, F1, are considered.

The time quantization of focused light refers to the double rotation produced by surface light spinors (as torsional springs) and gravitational twisters (as oscillating strings) inside the constant spot-light, viewed as the excitation high frequency (or surface fastly varying waves, individual wave crests) and the response low frequency (or internal gravity slowly varying deep-light wave packets).

The results concerning the positions relative to focal points, the surrounding equilibrium configurations and the excitation and response frequencies of focal points as a standard gauge of time structures are summarized in Fig. 6.

The quantic clock law is given by $\frac{T_{e1}}{T_{r1}} = 363^0 \cong 360^0$; - in conjunction with the light gravity ($\boldsymbol{g_0}$) and the quantic time structure short light waves) as $g_0 \frac{T_{e1}}{T_{r1}} = 3600$ s $\equiv 1$ hour (warm)

$$g_0 \frac{T_{e1}}{T_{r1}} = 3600 \text{ s} \equiv 1 \text{ hour (warm)},$$

$$e/\pi \cdot c_0^{1/2} / \left(g_0 \frac{T_{e1}}{T_{r1}} \right) = 24 \text{ h} \equiv 1 \text{ day (warm)}, \tag{9}$$

$$\frac{T_{e1}}{T_{r1}} = 363.19 \text{ days} \equiv 1 \text{ year (warm)},$$

consistent with the terrestrial clock, Fig. 6.

Spot light (m, AU)	$l_{SL} = c_0 \cdot g_{f1} \cdot g_{f2} = e \cdot 10^{12}$ m, $\tilde{l}_q = (e^{2/3}\pi) \cdot 10^{12}$ m $= 20$ AU (quantum approximation included)				
Depth-gravity field (astronomical units, 1 AU≡ $dF_1 = c_0 g_0 Ker^{-1}(2/3)$ = $= 3/2 \cdot 10^{10}$ m	$i = 1\text{-}4$	Near-field ($\overline{d_{\iota 1}}$ - relative distance from F_1)			
	$\overline{d_{\iota 1}}$	$2e^{\frac{1}{2}}/g_0$ (0.4)	e^2/g_0 (0.74)	$1(F1)$ (1)	$\pi/2$ (1.5)
	g_i, m/s²	$e^{4/3}$ (3.79)	$e^2 + e/2$ (8.75)	$\pi^2(F1)$ (9.87)	g_0/e (3.68)
$dF_2 = c_0 g_0 Ker^{-1}(3/4)$ = $= 3/4 \cdot 10^{12}$ m	$i = 5\text{-}9$	Far-field			
	$\overline{d_{\iota 1}}$	$\frac{dF2}{dF1}$ (5) $\quad \left(g_0 - \frac{e^{\frac{3}{2}}}{g_0}\right)$ (9.55) $\quad \left(2g_0 - \frac{e^3}{g_0}\right)$ (19.26) $\quad \left(3g_0 - \frac{3}{g_0}\right)$ (29.85) $\quad \left(4g_0 - \frac{1}{2}\right)$ (39.5)			
$\frac{dF2}{dF1} = 5 -$ CONVERSION FACTOR	g_i, m/s²	$\left(\frac{g_0}{2}\right)^2$ (2.5) $\quad \left(\frac{g_{f2}}{3} - e^{\frac{2}{3}}\right)$ (10.28) $\quad \frac{g_{f2}}{3}$ (8.33) $\quad \left(\frac{g_{f2}}{3} + e\right)$ (11.05) $\quad e^{\frac{2}{3}}\pi$ (6.12)			

PHASES OF TWISTED FOCAL GRAVITY-METASTABLE EQUILIBRIUM

Frequency (ν, Hz) Period (T, s)		SHORT LIGHT WAVES (F1)
EXCITATION	ν_e, Hz	$\nu_e = \frac{c_0}{g_{f1} \cdot g_{f2}} = \frac{1}{e} \cdot 10^8$Hz
	T_e, s	$T_e = f_{e1} \cdot \nu_e = \pi \cdot 10^7$ s, $f_{e1} = e/\pi$ - conversion factor
RESPONSE	ν_r, Hz	$\nu_r = \frac{\Phi_L}{\nu_e} = e^2 \cdot 10^4$ Hz
	T_r, s	$T_r = f_{r1} \cdot \nu_r = e/\pi \cdot 10^5$ s, $f_{r1} = g_0/e\pi$- conversion factor
Frequency (ν, Hz) Period (T, s)		LONG LIGHT WAVES (F2)
EXCITATION	ν_e, Hz	$\nu_e = \frac{c_0}{g_{f1} \cdot g_{f2}} = \frac{1}{e} \cdot 10^8$
	T_e, s	$T_e = f_{e2} \cdot \nu_e = \pi \cdot 10^8$ s, $f_{e2} = \pi e$
RESPONSE	ν_r, Hz	$\nu_r = \frac{\Phi_L}{\nu_e} = e^2 \cdot 10^4$ Hz
	T_r, s	$T_r = f_{r2} \cdot \nu_r = 1/e \cdot 10^5$ s, $f_{r2} = \pi^2/e^3 \cong 1/2$

Figure 6 – The quantic space-time structure (gravitational gauge of space-time)

By comparison the focal clocks show a kind of time inversion between the local time (daily) and global time (yearly) for the clock (F1) to clock (F2) ratio as

$$\frac{T_r(F1)}{T_r(F2)} = \frac{24}{10} = 2.4 \cong \frac{g_{f2}}{g_{f1}}, \text{ the dayly time,}$$

$$\frac{(T_e/T_r)_{F1}}{(T_e/T_r)_{F2}} = \frac{\pi^2/e}{\pi e g_0} \cong \frac{1}{g_{f2}}, \text{ the yearly time.}$$

The temporal phase difference of focal times is due to the antigravitational effect of thermal agitation more intense for the cold focus.

4. THE THERMAL FIELD AND INVARIANCE OF MOLECULAR STRUCTURES

The second precessional effect of light focusing is the thermal and invariance of molecular structures fastly regenerated. The slower gravitational twisters in the resonance with light engenders a thermal field in conjunction with the primal material structure as a homogeneous hot plasma (lava or Gamow' ylem) that envelopes the gravitational structure buckling the whole kinetic energy of surface light waves (c_0^2) into the volume of bounded spot-light ($l_q = e^{2/3}\pi \cdot 10^{12}$ m). The material gravitational structure is like a backbone of gravitized matter called **gravitational mass** or simply mass, existing at multi-scales, Fig. 5.

The mass as a quantic product has the physical elasticity property subjected to the torsional constriction of a yielding sphere, characterizing the focal mutual interaction, Tr(F2) > Tr (F1), as

$$S = 4\pi R^2 \cong 12e^{2/3}\pi R^2,$$
$$V = 4/3\pi R^3 \cong (eg_0)^{1/3} \rightleftarrows (eg_0^2)^{1/4} R^3, \tag{10}$$
$$R = 1/2\sqrt{S/\pi} \cong e/g_0\sqrt{S},$$

The light polarization (Ker(3/4, 2/3)) engenders cooperative thermal (p, T) and thermo-molecular fields governed by the focal interaction of yielding sphere, Eq. 10.

The thermal field, the outcome of light polarization, Ker(3/4), is a two variable field (T – temperature, p – pressure) given by

$$T_{F1} = e/\pi c_0^{\frac{1}{4}} \equiv 273.617^0 K, \text{ the absolute temperature of F1 focus (warm)},$$

$$T_{F2} = 1/2 c_0^{\frac{1}{4}} \equiv 158.11^0 K, \text{ the absolute temperature of F2 (cold)}, \tag{11}$$

$$p_{F1} = c_0^{\frac{1}{2}} \equiv 10^5 \frac{N}{m^2} = 1 \text{ bar} \text{ , (terestrial units)} - \text{the pressure of F1}$$

$$p_{F2} = \frac{g_{f2}}{g_{f1}} \cdot p_{F1} \equiv 2.5 \text{ bar}, \text{the pressre } of F2, \tag{12}$$

The focal thermal field conjugates to global warming in the system. The focal mutual interaction of heat flow and the flow of mass which gives rise to certain cross heat and mass transfers (at microscales), is in internal/alternatively or metastable (torsion phase) equilibrium only if

$$\Delta T_{cr} = \frac{Ker(2/3)T_{F1}}{T_{F1} - T_{F2}} \leq \frac{\pi}{2}^0 \text{ K}. \tag{13}$$

The strict inequality (13) is the athermal condition for a focal interaction in working order, better known as the **global warming condition**, vital to keep the function in frozen metastable equilibrium of the system.

The actual sever climatic changes are the reaction of the unbalanced focal work out of order of the terrestrial focus caused by the human activities with excessive consuming energy; the Gaian feedback mechanisms take place [10].

The termomolecular field is the result of the interaction between photons (quantum-gravity bundle) and the thermal field (p, T) where the buckling lag produces differences in photon load carrying capacity between the warm (p_{F1}, T_{F1}) and the cold (p_{F2}, T_{F2}) field.

The thermal photon load difference creates the thermomolecular microstructures as the interaction of heat flow and the flow of mass (gravitized matter), afterward following thermomechanical effects.

The thermal photon load is given by the quantic median (Eq. 8) as a molecular quantic valence, distinct of the mathematical approach of Schrodinger equations [4-6], featuring in the finer atomic microstructure.
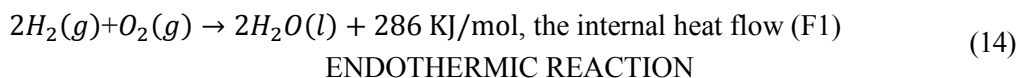
The quantic valence follows the photon regeneration process, Eqs. 7, described by means of the quantic rule 2^k ($k = 1-5$), where the photon regeneration is got via the bifocal gravitational structure, Eq. 2, called the **buckling lag**.

The physically buckling lag is a focal mutual interaction that functions as a switch between the focal centres, resulting from the light focusing (a cross thermal-molecular polarization Ker(3/4, 2/3)), surrounding the focal points.

This achieves a cross thermal (warm-cold) and mass (fastly regenerative/molecular mass-slowly regenerative/relative mass) inversion.

The thermal mass inversion can be viewed as alternating time periods of the metastable equilibrium state of spot-light, i.e. the alternation of excitation period of focal centres, where short refrigeration times (**thermal time**) of hot gravitized matter form light chemical compounds with small valence ($k = 1, 2, 3$) and longer refrigeration times form heavy chemical compounds with larger valence ($k = 4, 5$).

Referring to the terrestrial (atomic and molecular) microstructures, the light self-ignition engenders light chemical compounds like atomic hydrogen, carbon and oxygen, and heavy compounds like molecules of water (H_2O), methane (CH_4) and carbon dioxide (CO_2) along with the following basic chemical reactions for most combustion processes

$$2H_2(g) + O_2(g) \rightarrow 2H_2O(l) + 286 \text{ KJ/mol, the internal heat flow (F1)}$$
$$\text{ENDOTHERMIC REACTION} \tag{14}$$

$$CH_4(l) + 2O_2(l) \rightarrow CO_2(l) + 2H_2O(l) + 212 \text{ KJ/mol, the external heat flow (F2)}$$
$$\text{EXOTHERMIC REACTION} \tag{15}$$

where Eqs. 14, 15 govern respectively the external combustion and internal combustion surrounding the warm focus and cold focus.

Equations 14, 15 represent the cross-flow heat exchanger or **thermomolecular inversion**. The thermodynamic processes at the molecular scale, fastly regenerated, are reversible invariant processes, involving equivalent cross-flow heat exchanges between the focus centers, executed at the metastable equilibrium state, their triple point (ice-liquid-vapor) of water T_{3H_2O} = 273.16^0 K (F1) and T_{3CH_4} = 190^0 K (F2).

At the larger scales, the slow regenerative mass process in a reciprocating cycle assumes the thermomecanical effects of mass loss or residual mass.

At the large scales the mass regeneration process requires long time periods with mass (or dark energy) losses and this temporal or relative mass is characterized by its half-life (the duration of it to undergo a disintegration). The post light self-ignition, the created mass ($M \equiv c_0^3$-thermal energy) is polarized, Ker(2/3), as

$M_r = M^{1/3} \equiv c_0$ – the slowly regenerative/relative mass (or dark energy),

$M_{th} = M^{2/3} \equiv c_0^2$ – the fastly regenerative/thermomolecular mass (or white energy).

The thermomolecular mass and total gravity $G = g_{f1} \cdot g_{f2} = e \cdot 10^2$, remains constant (endless) while the ratio of relative mass surrounded by the focal centers is invariable

$$\frac{M_{F2}}{M_{F1}} = \frac{(T_e/T_r)_{F2}}{(T_e/T_r)_{F1}} = \pi g_0^2. \tag{16}$$

The relative mass is the mass transferred in the constant proportion, Eq. 16, from warm mass (white energy c_0^2) to cold mass (dark energy $M^{2/3}$), the total energy being conserved as

- fastly regenerative energy $M^{2/3} \rightleftarrows c_0^2$, the constant energy,

- slowly regenerative energy $M^{1/3} \rightleftarrows c_0$, the consuming energy.
$$\tag{17}$$

$$m(F_1) \equiv \frac{e}{\pi} Ker\left(\frac{2}{3}\right)^{\frac{1}{2}} c_0^2 M^{\frac{2}{3}} = 5.76 \cdot 10^{24} Kg \ (TU), \text{ the external mass flow,}$$

$$m(F_2) \equiv \frac{e}{\pi} Ker\left(\frac{2}{3}\right)^{\frac{3}{4}} c_0^2 M^{\frac{2}{3}} = 1.82 \cdot 10^{27} Kg \ (TU), \text{ the internal mass flow,}$$

consistent with the solar system data

5. CONCLUSIONS

The main ideas of the regenerative quantic conception are summarized in the sequel.
1. The paper presents a natural quantic (π/e) theory of gravity describing the caustic phenomena triggered by light self-ignition followed by invariant torsional buckling processes of order-disorder transformations and melting, where certain subsystems will combine to form units which hold together in spite of the disrupting influence of thermal agitation.
2. The metastable equilibrium critical states of light spontaneous combustion can be produced into an unbounded/ measureless multiverse 4-DQuantic ($2\pi/e$) space surrounded by the light field. The laws of a multiverse bounded self-consistent quantic ordered field have been given in the present paper as
    -   the quantum-gravity inversion (Eqs. 2-4)
    -   the space-time quantization, including the quantic clock law (Eq. 9, Fig. 6);
    -   the thermomolecular inversion along with the cross endless thermomolecular chain reaction (Eqs. 14, 15);
    -   the relativity of mass at macroscales or buckling lag as the invariant ratio of relative macrostructures to absolute/timeless microstructures (Eqs. 16, 17); i.e. the conservation law of total energy.
    All these laws of quantic order are based on the classical elasticity theory where a torsion/warping function of focused/gravitized light is a single-valued harmonic function depending on its eigenvalues, herein the twist factor or kernel of polarization.
3. The quantic concept can be the base of a grand unified theory (GUT) of physics along with a unified system of units (heat (kcal) and kinetic energy (Joule units), where the quantic thermomechanical equivalent (Q) is

$$Q \equiv (e4 - g0) = \frac{44.6 \, Joule}{^\circ K} \tag{18}$$

4. Figure 7 illustrates the cosmic concept of regenerative multiverse formed by the caustic phenomena of the light spontaneous combustion, followed by its penetration and polarization into the unbounded 4-Quantic space where the light focusing (or gravitization) is embedded in a bounded matter (or mass).
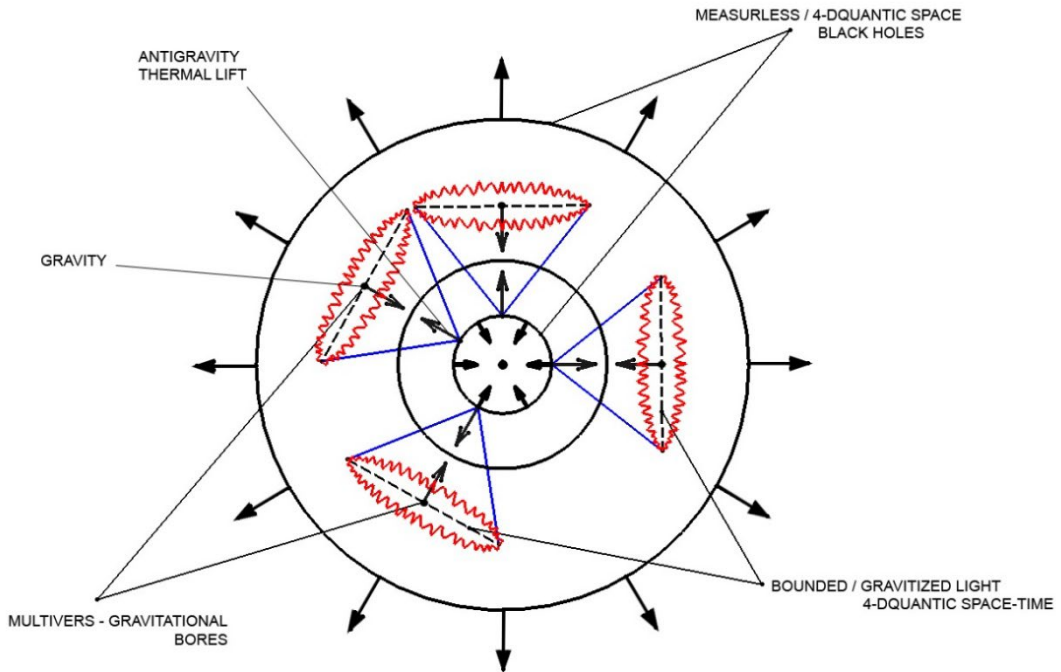
Figure 7 – The cosmic concept of regenerative multiverse triggered by the light self-ignition

The multiverse is the critical thermodynamic equilibrium state of a regenerating matter in the light field; i.e. a buoyancy state of a relative mass.

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