FAR ELEMENTARY ANALYSIS OF ENERGY PARTICLES

(08.10.2019-02.11.2019)

Scope of the Exploration:

1. MATTER as a whole, would remain undefined for centuries unless **Deductive Science** of the 21st century, could overtake the conventional stream of PHYSICS, to lead it towards the REALITY because, MAN has almost met the dead end of **Laboratory Experimentation.**

2. MIND−the 6th **Measuring Organ** of MAN −could be enlightened to guide the **Experimentation** towards the REALITY through creation of many **Conceptual Models** and deducting them by means of **Logical Reasoning** and **Scientific Evidences.**

Theoretical Knowledge Base for the Exploration:

1. The law of Conservation of Energy: $E=Mc^2$ −Albert Einstein
2. Density $=$Mass/Volume: $\rho = M/V$ - Archimedes
3. Kinetic Energy in Matter: $E_k=1/2\ (Mc^2)$ −Isaac Newton
4. Volumetric Energy in Matter: $E_v=PV$ −21st century
5. Ultimate Energy Stock in Matter: $E= E_k+ E_v$ −21st century
6. Medium Relation of Matter: $P=1/2\ (\rho c^2)$ - Fluid Dynamics
7. Skin Diffusion of Energy Matter : $v=\sqrt{(4\pi P_i r^3)/M}$ −21st century
8. Pressure doubling in particle Bubbles: $P_i = 2xP_o$ −21st century
9. Volumetric Drop in Scalar Consistency: $D_v=10^{15}$ −21st century

(Note: the highlighted theories are re−analyzed in the appendix)

01-Far Elementary Analysis of Electron:

Author's Note:

The Reader perhaps could not be happy to see unfamiliar figures of data furnished in the frontal pages but please have patience to observe how each deduction is proven either mathematically or by logical reasoning, within this paper itself.

Available & Derived Data:

- Mass of Electron; M_e= 9.109 x 10^{-28}g (from the background art)
- Pressure of the free space Vacuum; P_o=9.008 x 10^{17} dynes/cm^2 (Reference -01: 'Dynamic Model of Atom')
- Pressure in the Atomic Bulb=2(P_o)=1.80 x 10^{18} dynes/cm^2
- Pressure in moving Electron in the atomic bulb=2x2(1.80 x 10^{18}) = 7.2 x 10^{18}dynes/cm^2
- Pressure in Electron in linear motion=3.6 x10^{18}dynes/cm^2
- Pressure in Electron at the Vacuum state=1.8 x 10^{18}dynes/cm^2

Conceptual Model of Electron:

The best model of Electron:-

Structure: Electron possesses a Structure just like an empty soap bubble. The Skin is a membrane made up of static **Photons** tightly tensioned due to the **Pressure Gap** between in and outside as demonstrated in **figure-02**.

Dynamics: Electron exhibits orbital **rotary dynamics** in the Atom and **linear dynamics** in the outer space.

Total Energy stock in Electron= Kinetic Energy+ Volumetric Energy
$$Mc^2 =1/2 (Mv^2) + PV$$
$$PV=1/2 (Mc^2) \text{ at the speed } v=c.$$

Evidences: Soap bubbles are contracted at high speed and expanded at low speed. It indicates that the skin membrane of the bubble is more tensioned whence outer pressure is dropped. (This phenomenon is completely different in case of an air balloon because it is more expanded whence outer pressure is dropped.)

Volumetric Energy:−

A **Particle** possesses a kind of a potential energy by its claim for VOLUME, being expanded from ZERO, against the PRESSURE gap and tension of the Skin membrane.

Just as abstracted from the monograph 'Space Dynamics-1' /2009 (reference-02):−

2.3 VOLUMATRIC ENERGY

Volumetric Energy of matter is defined hereby as the work done by the matter in its expansion from the zero volume in to the present volume, against the external pressure..
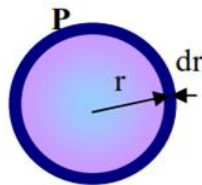
$$E_v = P\int_{0}^{R} 4\pi r^2 dr = P\,\frac{4\,\pi r^3}{3}$$

$$E_V = PV \quad \ldots\ldots\ldots\ldots\ldots\ldots(3)$$

Where. P-external pressure & V-volume

FIGURE-01

Therefore any matter in the space, which holds a volume against the medium pressure, possesses a volumetric energy.

Shooting of Photons from Electron:−

Theory of Skin Diffusion explains how **Light & Heat** particles are shot out from the skin of electrons whence it is contracted due to motion through a **frictional medium.**

We don't observe a lightening stroke or an electric spark unless light rays are projected out laterally from the moving beams of electrons.

FIGURE−01(shooting of Photons from contracting Electrons)
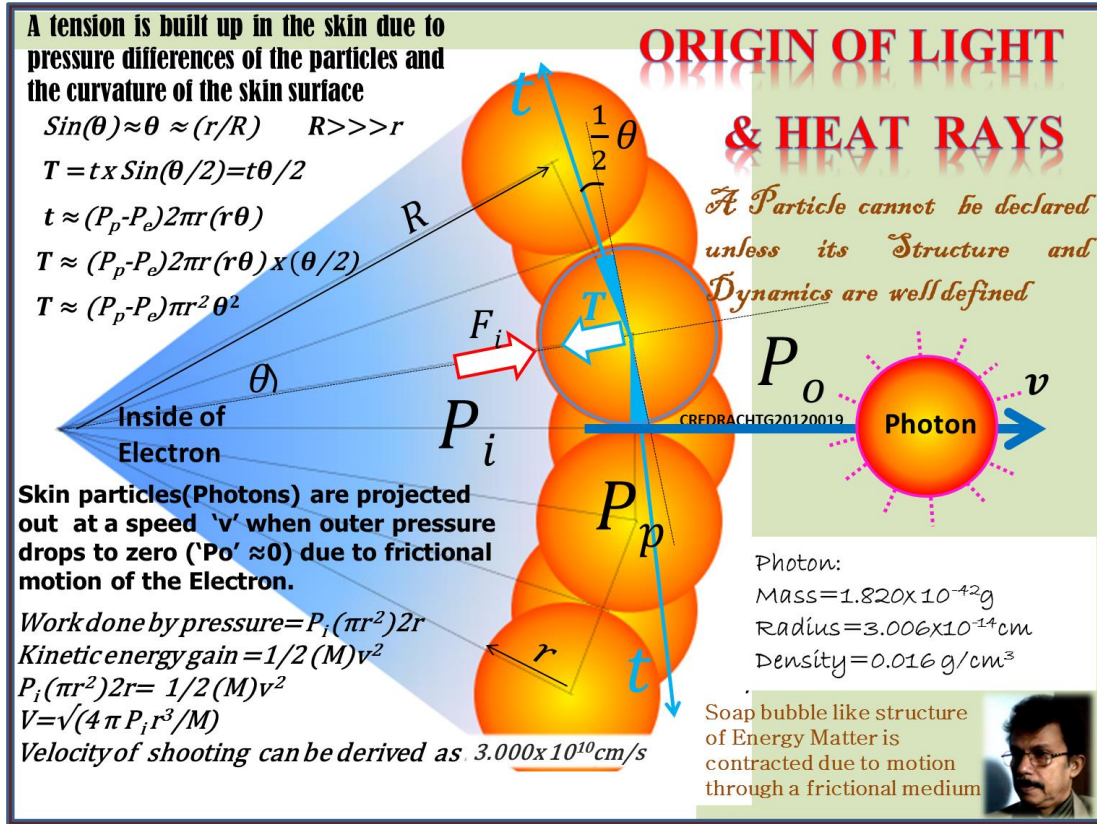
FIGURE−02 (Theory of Skin Diffusion of Electron)

Pressure doubling in Particle Bubbles: $P_i = 2 \times P_o$

At the static state, Pressure in the Particle Bulb is nearly doubled that of the outer medium. This is because of the tension of the skin membrane.

Pressure is further increased in the bubble whence it happens to move against a frictional medium.

Deep calculations upon the theory of **Skin Diffusion** could tell us exactly, the percentage increment of **Pressure** inside of a Particle Bulb, being dependent of sizes of the skin particles. But for the time being, the doubling assumption seems not far away from the Reality.
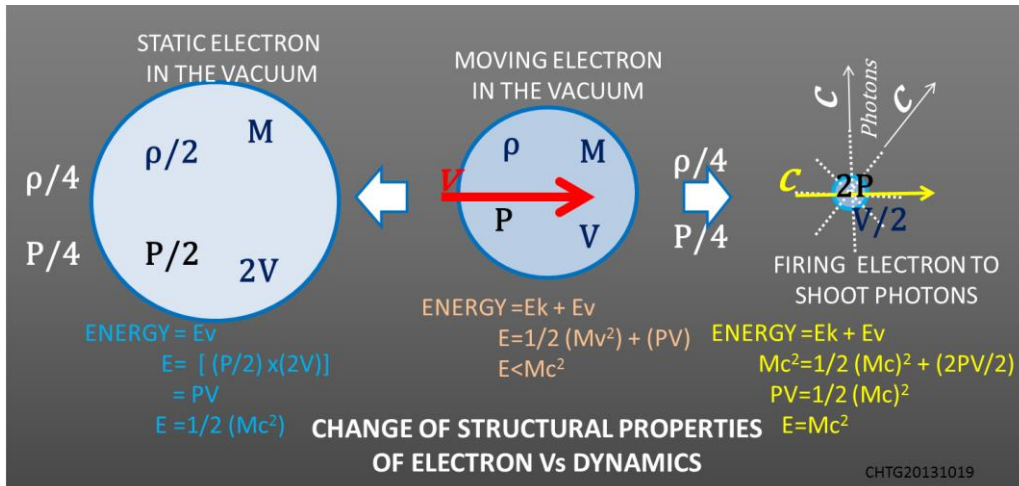
FIGURE−03 (Change of Structural Properties of Electron)

Volume is doubled (2V) while Pressure is dropped by half (P/2) at the extreme expansion of the static Electron. Density too is dropped by half as per $\rho = M/V$.

FIGURE−04: (Properties of Energy Matter)

Analysis:

1-Radius of Electron in the Atom:

Kinetic Energy E_k = ½ Mv^2 (at v=c= 2.998 x 10^{10}cm/s)

$$=½ \ (9.109 \ x \ 10^{-28})(2.998 \ x10^{10})^2$$

$$=4.093 \ x \ 10^{-7} \ ergs$$

Volumetric Energy E_v =(Pressure)x(Volume)

$$=P \ x \ V$$

$$=(7.2x \ 10^{18} \ dynes/cm2)xV$$

Ultimate Energy(mc^2) =Kinetic Energy + Volumetric Energy

8.187 x 10^{-7} ergs =4.093 x 10^{-7} ergs +7.2x 10^{18} V ergs

V=5.686x10^{-26} cm3

R_e=2.385 x 10^{-9}cm (orbiting Electron inside of atom)

2-Density of Electron in linear motion:

Radius =3.006x10^{-9}cm

Density=Mass/Volume

$$\rho =9.109 \ x \ 10^{-28}g \ \ /2.273x10^{-25} \ cm^3$$

$$\rho =0.008g/cm3$$

3-Ultimate Energy Stock in Electron:

$$Mc^2=(9.109 \ x \ 10^{-28}g)(2.998 \ x \ 10^{10}cm/s)^2$$

$$E =8.187 \ x \ 10^{-7} \ ergs$$

(Only half of that could be abstracted by any method of energy generation)

4-Specific Solid Density in linear motion= Actual mass/Vacuum mass

SSD =(9.109 x 10^{-28}g)/(0.008x1.137x10^{-25})

SSD =1.00

5-Pressure in Electron in linear motion:

$$P_i = 1/2 \ (\rho c^2)$$

$$= 0.5 \ x \ (0.008) \ (2.998 x 10^{10})^2 = 3.6 \ x \ 10^{18} \ \text{dynes/cm}^2$$

Summary of Results: ELECTRON

1. Mass of Electron, $\quad$ m= $9.109 \ x \ 10^{-28}$g

2. Ultimate Energy Stock in Electron:

$\quad$ E = $8.187 \ x \ 10^{-7}$ ergs = $8.187 \ x \ 10^{-14}$ joules = $1.956 x 10^{-14}$ calories

2. Pressure in Electron in linear motion:

$$P_e = 3.6 \ x 10^{18} \text{dynes/cm}^2$$

3. Radius of Electron in Atom:

$$R_e = 2.385 \ x \ 10^{-9} \text{cm}$$

4. Density of Electron in linear motion:

Radius = $3.006 x 10^{-9}$cm

$$\rho = 0.008 \ \text{g/cm3}$$

5. Specific Solid Density in linear motion:

SSD= 1.00

"*The entity of ELECTRON, in our mindset, is just a snapshot at the mid position of its threshold dynamics between VACUUM and LIGHT***".**

Note:

Electron doesn't respond for **Gravity** at all because it doesn't possess an **Interior Rotary Dynamic Organization** just as in Atoms.

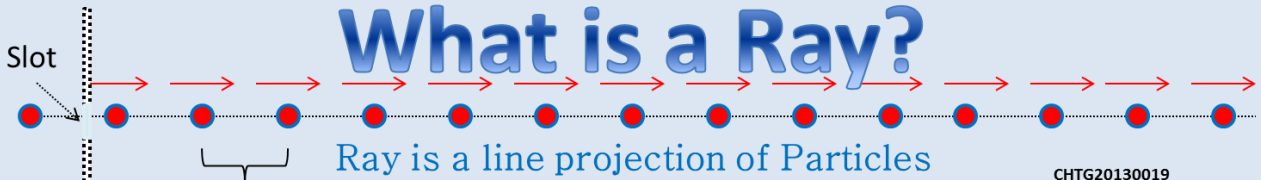## 02-Far Elementary Analysis of Photon:

Background Art:

Light has so vaguely defined in the syllabus in the background science that nobody could ever understand it confidently enough. Neither STRUCTURE(figure) nor DYNAMICS(behavior) had been defined acceptably enough by the complex theories from the 20th century.

According to some of their explanations, **Light** is of **half wave** and **half particle** and hence it is very difficult to figure out its shape. In another explanation, **Light** had been addressed as a **massless** thing, a **constant** and as the **deciding factor** of Time, Space and Universe.

It is quite unfortunate of a thing that even today by the 21st century some people seem unaware of the difference between a **Medium Wave** and a **Ray**. That is mainly because of **blind conservation** of the wrong theorizations from the 20th century without challenging at all.

Deductions from the Alternative Knowledge Base:

1. Photons are issued as Rays of particles, whence Electron moves through a **Frictional Medium**

2. Photons in **linear motion** are recognized as Light & Heat and the maximum speed known as **speed of light** is limited by the **friction** of the VACUUM.
3. Speed lost Photons become static particle members of the **Vacuum Medium**.

Analysis for Photon:

1-Radius of Photon in Electron in linear motion:

According to the theory of 'Scalar Consistency of Matter' (reference-03), we could never find any Elementary Particle for the reason; a PARTICLE STRUCTURE is made up of similar kind of tiniest particles of the DROPPED SCALE (10^{-15}). Therefore a **Photon** must be 10^{-15} times smaller than the size of an **Electron**.

Hence Radius of Photon is 10^{-5} times smaller than that of Electron.

Radius of a moving Photon $R_p = 3.006 \times 10^{-14}$ cm

2-Density of a Photon in linear motion:

Theory of 'Pressure doubling in Particle Bubbles' : $P_i = 2 \times P_o$

Density of Photon must be doubled that of Electron when it is inside of the moving Electron (=0.008g/cm3). After been projected out it must be again doubled due to contraction for speed.

Density of a moving Photon $= 2 \times 2 \times (0.004 \text{g/cm3}) = 0.016$ g/cm3

$\rho = 0.016$ g/cm3

3-Mass of a Photon:

Mass = Density x Volume $= (0.016 \text{ g/cm3}) \times (1.137 \times 10^{-40} \text{cm}^3)$

$M_p = 1.820 \times 10^{-42}$ g

4-Ultimate Energy Stock in Photon

$Mc^2 = (1.820 \times 10^{-42} \text{ g})(2.998 \times 10^{10})^2 = 1.636 \times 10^{-21}$ eargs

$E = 1.636 \times 10^{-21}$ ergs $= 1.636 \times 10^{-28}$ Joules $= 3.908 \times 10^{-29}$ calories.

(only half of that could be abstracted in any method of energy generation)

5-Specific Solid Density= Actual mass/Vacuum mass

SSD $=1.820 \times 10^{-42}$ g/$(0.016 \times 1.137 \times 10^{-40})$ g

$= 1.00$

6-Shooting Speed of a Photon

Approach-1: Medium Relation:- $P = 1/2 \ (\rho) v^2$

$7.2 \times 10^{18} \text{dynes/cm2} = 1/2 \ (0.016 \text{g/cm3}) \ v^2$

$\underline{v = 3.000 \times 10^{10} \text{ cm/s} = c}$

Approach-2: Shooting out from the firing Electron(Figure-02)

$v = \sqrt{[4 \ (P_e) \ \pi r^3/M]}$

$= \sqrt{[4 \ \pi \ (4.82 \times 10^{18}) \ (3.006 \times 10^{-14})^3/1.82 \times 10^{-42} \text{g}]}$

$\underline{v = 3.00 \times 10^{10} \text{ cm/s} = c}$

Photons are issued when Electron is more contracted moving through a **frictional atmosphere**. Photons are not issued from Electrons whence it is moving in the Vacuum.

Summary of Results: PHOTON

1. Radius of Photon in linear motion: $R_p = 3.006 \times 10^{-14}$ cm

2. Mass of Photon: $M_p = 1.820 \times 10^{-42}$g

3. Density of Photon: $\rho = 0.016$ g/cm^3

4. Ultimate Energy Stock in Photon:

   E $= 1.636 \times 10^{-21}$ergs $= 1.636 \times 10^{-28}$ Joules $= 3.908 \times 10^{-29}$ calories

5. Specific Solid Density:

   SSD$= 1.00$

Analysis for Moola Photon (light of the dropped scale):

Definition:

'Theory of Scalar Consistency of Matter' explains that no elementary particle could be found by Man, because his scale is rather too big in comparison (reference-03)

Accordingly the skin membrane of the **Electron** bubble is made up of **Photons** and similarly Photon is made up of the far Elementary Particle named as **Moola Photon.** (The low energy whitish light from **florescent** and LED mechanisms are suspected to be of the sort)

Deduction:

Aforementioned theory also explains that the Scale Drop of the due sequence is 10^{-15} in volumetric size.

Accordingly volume of Moola Photon $=10^{-15}$ x (volume of Photon)

Radius of Moola Photon $= 10^{-5}$ x (radius of Photon)

$=\underline{3.006\text{x }10^{-19}\text{cm}}$

Evidences:

The shiny white lite that we observe around Sun, at a full eclipse, could not be born from Electrons in the radiating layer. Then it should definitely be born from **skin diffusion** of Photons, fired against the friction of the solar atmosphere.
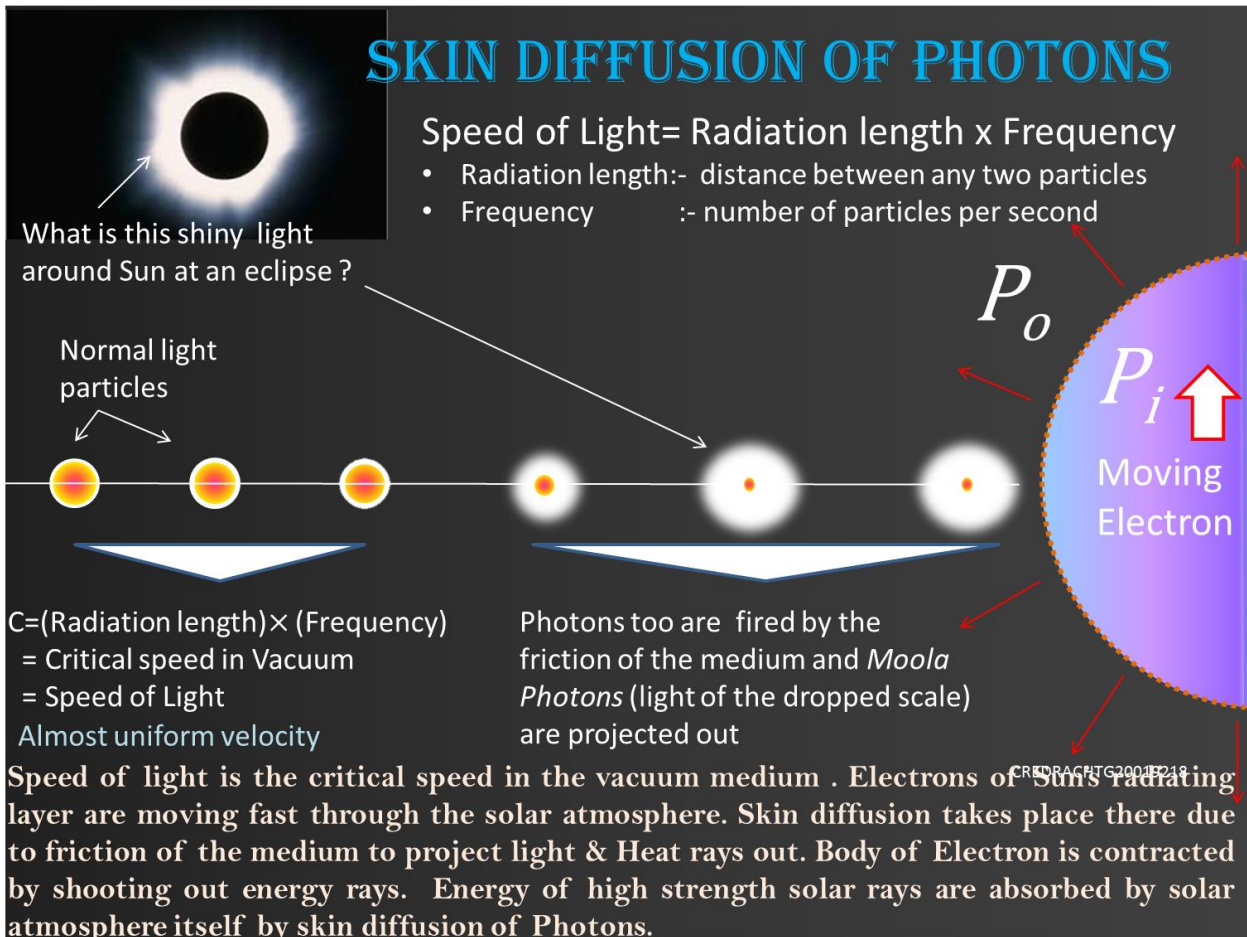
FIGURE−05（Skin Diffusion of Photons）

Discussion:

1) **What is Vacuum?**

1.1-Historical evidences: Vacuum has been identified as the material that the free space is occupied, by the period of Buddha-6th century BC- with written evidences of his Philosophy (*Dhamma*) and perhaps even before this recorded period.

How Buddha has categorized the states of MATTER?

1) Solid State(*Phatavi*)

2) Fluidic State (*Arpo*)
3) Energy State (*Thejo*)
4) Gassy State (*Vayo*)
5) Space State (*Akasha*)

The sixth category, among the five Matter (*Pancha Maha Bhootha*) of his explanation is the address of VACUUM.

1.2-How Matter is categorized by Physics?:

1) Solid State
2) Fluid State
3) Gas State

1.3-Alternative categorization of MATTER by the Deduction:

1) Atomic Matter(Elementary Solid Particles of Interior Rotary Dynamics)
2) Energy Matter(Elementary Bubble Particles of exterior linear Dynamics)
3) Space Medium Matter(A static Combination of speed lost Energy Particles)

1.4- Physical properties of Vacuum?

How density of Vacuum is derived as ***0.002g/cm³?*** It has been derived by the total energy balancing at both sides of the *Fundamental Cosmic Reaction* (FCR-1);

NEUTRON   = HYDROGEN ION + ELECTRON

Ultimate Energy Stock = Kinetic Energy + Volumetric Energy

$$(M_N)c^2 = (M_H)c^2 + P(V_H)$$

(let us substitute known values in the equation. P is the external medium pressure)
$$(1.675-1.673) \times 10^{-24} \times (2.998 \times 10^{10} \text{ cm/s})^2 = P[^4/_3 \pi (0.78 \times 10^{-8})^3 \text{cm}^3]$$
$$P = 1.79 \times 10^{-6} \text{ } / \text{ } (1.987 \times 10^{-24})$$
$$\underline{P = 9.008 \times 10^{17} \text{ dynes/cm}^2}$$

From the medium relation $P = \frac{1}{2}(\rho)c^2$, density is derived as;
$$\rho = 2P/c^2$$
$$= 2(9.008 \times 10^{17})/(2.998 \times 10^{10})^2$$

$$\underline{\rho= 0.002 \text{ g/cm3}}$$

1.5- A different approach for Vacuum:

Density of Vacuum at Earth has been derived through an approach on orbital dynamics of Planets. (reference-04)

According to the exploration based on 'Space Medium Resistance' density of vacuum at Earth was found as $\rho= 0.0001$ g/cm3. That is 20 times lower than what we could compute herein.

But we have observed that the fundamental cosmic reaction (FCR-1) is still taking place in massive scale at the Galactic Center where the Black Hole is expanding in to Hydrogen. Therefore some reasonable scope is there to think that VACUUM at the Galactic Center must be 20 times denser than that at Earth.

2)-How to weigh Energy Matter?

2.1-ELECTRON:

- Mass of Electron could never be found by any weighing machine because it doesn't respond for GRAVITY at all. But **Mass** of it is automatically taken in to accounts (*by **centrifugal force** in orbital motion*) whence the '**Columbic Electromagnetic Rotary Dynamics'** in the Atom is affected by the frequent($\approx 10^7$c/s) attack of the **Gravitational Wave**(reference -05).
- Electrons could float on the surface of waters whence a lightening stroke hits upon, because its density (0.008g/cm3) is lower than that of water (1.0 g/cm3).

2.2-PHOTON:

- Mass of Photons can be measured in the laboratory and a simple low cost demonstration is suggested in the picture;
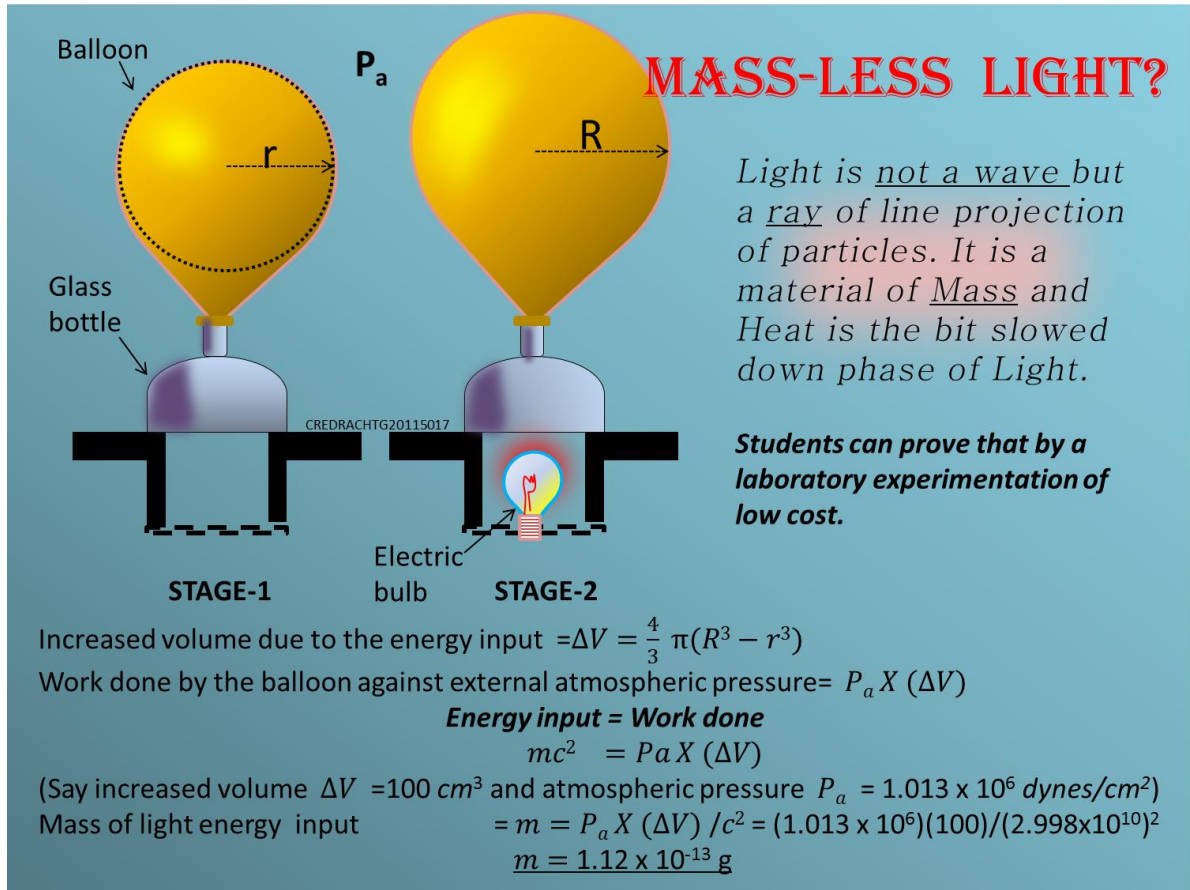
FIGURE−06 (Demonstration for Mass of Light)

END

By

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References:

1−Reference−01: Dynamic Model of Atom/2018

http://www.cyrilhtgamage.com/index.php/publication-space-dynamic/87-space-dynamic/175-the-dynamic-model-of-atom

2−Reference−02: Space Dynamics−V1/2009

http://www.cyrilhtgamage.com/index.php/publication-space-dynamic/87-space-dynamic/133-publication-1

3-Reference-03: Scalar Consistency of Matter/2018
http://www.cyrilhtgamage.com/index.php/87-space-dynamic/182-scalar-consistency-of-matter

4-Reference-04: Dynamic Stability in orbital motion of planets/2015
http://www.cyrilhtgamage.com/index.php/publication-space-dynamic/87-space-dynamic/152-dynamic-stability-in-orbital-motion-of-planets

5-Reference-05: Space Dynamics-V2/2009
http://www.cyrilhtgamage.com/index.php/publication-space-dynamic/87-space-dynamic/134-publication-2

(*Note:* Reader is sought kindly to comprehend that the monographs reflect the evolutionary development of the 'Alternative Knowledge Base' during some decades (could not be edited back as yet) and hence some slight differences in computations must be there)

Appendix:

01. The law of Conservation of Energy: $E=Mc^2$ - Einstein

1.1-The universal law of 'Conservation of Energy' is accepted as the Reality within the system boundary of the Supermassive Structural Entity known as a UNIVERSE.

1.2-But for the widest MULTIVERSE entity, with infinite number of GALAXIES (Universes)in it, the mathematical representation $E=Mc^2$ is not applicable because the total Energy Stock in Multiverse is ZERO (E=0).

1.3-The mathematical expression $E=Mc^2$ can be analyzed such as;

Energy Stock in Matter = Kinetic Energy + Volumetric Energy

$$Mc^2 =1/2(Mc^2) + PV$$

Therefore Volumetric Energy, $PV=1/2(Mc^2)$.

$E=Mc^2$ Definition for ATOMIC MATTER:-

Both Kinetic Energy and Volumetric Energy exists in the Atomic Matter half by half. Kinetic Energy due to external motion is not considered herein but

only the energy of **Internal Rotary Dynamics** within the Atomic Bulb is considered.

1.31－*What could happen if an Atom is accelerated near to speed of light?*

Then the Atomic Bulb should be contracted in to Nuclear Mass (**Neutrons**) losing of the Volume by a **scale drop of 10^{15}**.

But still there is a Volume and a very high Pressure and hence the Volumetric Energy remains the same.

1.32－*What could happen if a Neutron(Moola Atom*) is accelerated so further?*

Volume is almost lost from our scale of the WORLD and the Atom is contracted in to Neutrino Mass. But as yet the total energy stock remains as Kinetic Energy.

Kinetic Energy=1/2 Mc'^2 where $\underline{c' = \sqrt{2}\,c}$ so that total Energy $E=Mc^2$ is conserved. Therefore a Neutrino(*2nd Moola Atom*) can move in the VACUUM at a maximum speed limit of <u>4.239 x10^{10}cm/s</u>.

$E=Mc^2$ Definition for ENERGY MATTER & the VACUUM:－

1.33－*What could happen if a Photon is decelerated to a stop?*

Kinetic Energy is lost in to the environment but Volumetric Energy should remain unchanged as; $PV=1/2Mc^2$. In this phase transformation of the Energy Matter, **Volume** of the Bubble should increase while the **Pressure** in the Bubble decreases.

According to the deduction, that is just a doubling exercise where Volume is doubled while Pressure is dropped by half. Therefore Energy remains the same as; $E=(1/2\ P)x(2V)\ =PV=$ **$1/2Mc^2$**.

1.4－Therefore Einstein's Low of Conservation of Energy is a **Universal Reality.**

Hence if we consider a certain mass of Photons(Light), its Total Energy Stock E = Kinetic Energy ＋ Volumetric Energy.

When speed is lost by medium friction, the Kinetic Energy is lost in to the environment and only the other half remains as the Volumetric Energy.

02-Kinetic Energy in Matter: E_k=1/2 (Mc^2) −Isaac Newton

What is Kinetic Energy?

Kinetic Energy = **Work done** between the **Dynamic Change.**

$$Ek \; = \; [\text{Rate of } \textbf{Change of Momentum}] \times \text{Distance}$$

$$= \; M(dv/dt)\,dx$$

$$= \; M(dv/dt)\,dx$$

$$= \; M(dx/dt)\,dv$$

$$= \int_0^v M(v)\,dv$$

$$Ek = \frac{1}{2}Mv^2$$

[Total Kinetic Energy in MATTER is deduced whence the speed v=c as E=1/2(Mc^2)].

03-Medium Relation of Matter: P=1/2 $(\rho\, c^2)$ − Fluid Dynamics

As abstracted from 'Space Dynamics-V1' (reference-02)

3.2 MEDIUM RELATION

A controlled volume V, of space medium of density ρ, develops velocity and drops pressure due to motion from stage (1) to stage (2).as shown in figure-02.

Kinetic energy gain $\Delta E_k = \dfrac{(\rho V)[v_2^2 - v_1^2]}{2}$

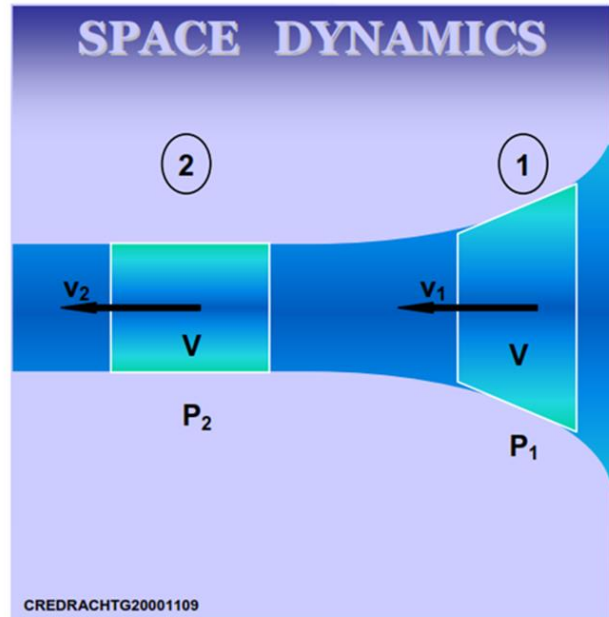Volumetric energy loss $\Delta E_v = [P_1 - P_2]V$

$$\Delta E_v = \Delta E_k$$
$$[P_1 - P_2]V = \dfrac{\rho V[v_2^2 - v_1^2]}{2}$$

If stage (1) is static ($v_1 \rightarrow 0$, $P_1 = P_0$ the *pressure of free space medium*) and stage (2) is at the critical velocity ($v_2 \rightarrow c$ the *velocity of light* and $P_2 \rightarrow 0$)

ie. $\quad P_0 = \dfrac{\rho c^2}{2}$ ....(6)

Generally, when any fluidic medium is in motion, pressure is given by the medium relation;

$$p = P_0 - \rho v^2/2 \ldots\ldots\ldots\ldots\ldots(7)$$

SPACE DYNAMICS

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Medium relation $P = 1/2 \ (\rho c^2)$ could be applicable for any mediums such as; Vacuum, Air, Water, solids etc.

Critical Speed limit of the Medium too could be found by this relation such as; $\underline{c = \sqrt{(2P/\rho)}}$

04–Volumetric Drop in Scalar Consistency: $D_v = 10^{15}$

According to the Alternative Knowledge Base of the 21st century, Different sizes of WORLDS could be observed with a Scale Drop of 10^{15} such as;

Neutron≪ Atom≪ Cell≪ Animal≪ Planet≪ Sun≪ Solar System≪ Galaxy

Therefore the same theory is used in this paper to clarify the sizes of Energy Matter Particles in the due sequence'

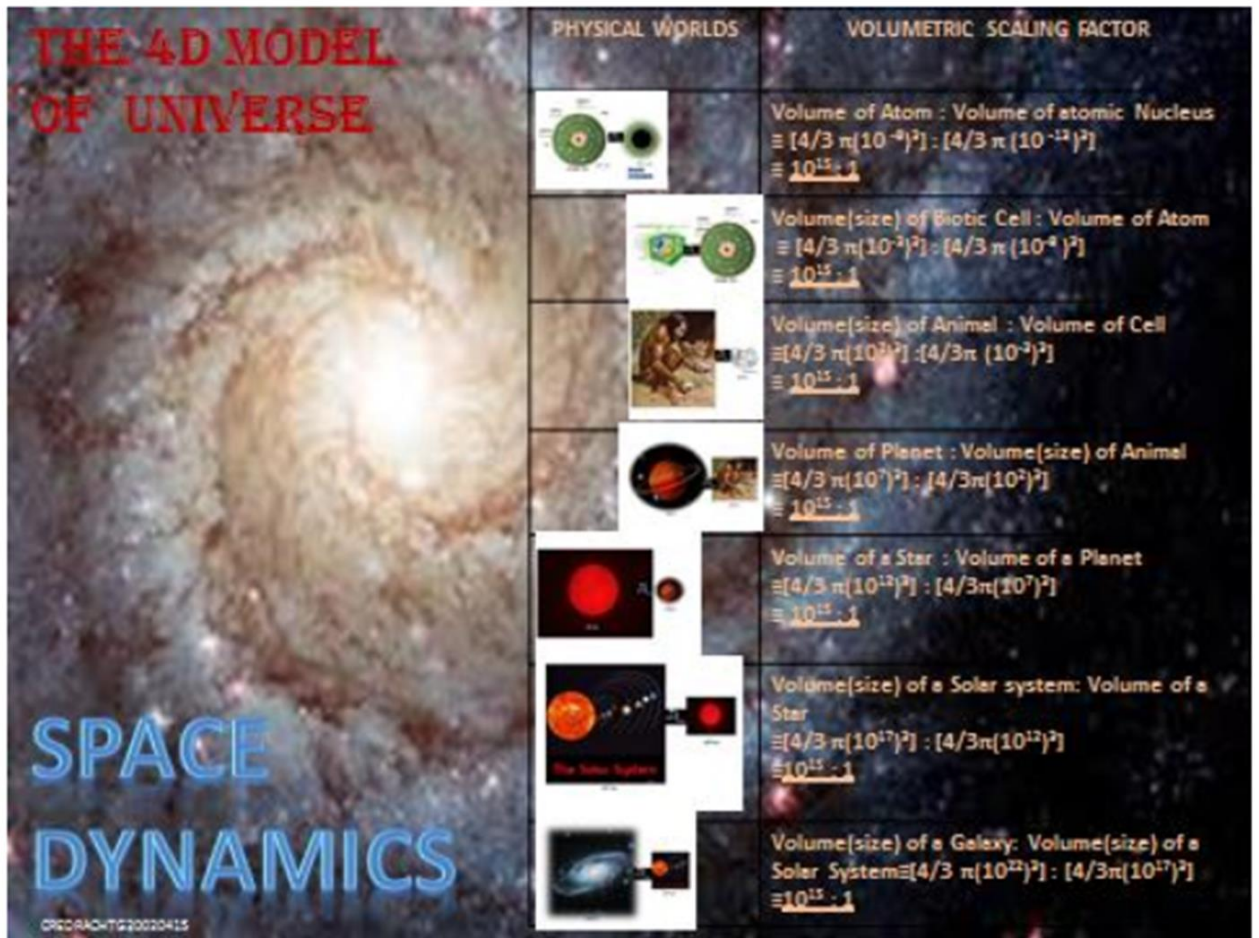Electron : Photon : Moola Photon etc. (reference–03)

FIGURE−07 (Creation of different WORLDS by Volumetric Gaps of 10^{15})