

SCALAR CONSISTENCY OF MATTER/08th Oct. 2018

1. WHAT IS 'MATTER' AND HOW TO MEASURE?
2. THE THREE STATES OF MATTER
3. MEDIUM MATTER
4. ENERGY MATTER
5. ATOMIC MATTER
6. SCALAR CONSISTENCY OF MATTER

1. WHAT IS 'MATTER' AND HOW TO MEASURE?

1.1 Man, being a good Explorer, ever attempted to measure everything to find 'How does the World of Matter do'

Those who are of macroscopic analytical disciplinary, have been searching for the '**Reality of Matter**' beyond the observable limits in the **Multiverse Space**.

Those who are of microscopic analytical disciplinary, have been searching for the '**Reality of Matter**' beyond the measurable limits of **Elementary Particles**.

1.2 The '**Extreme end Explorers**' have got to realize that they could have simply overlooked and marched far away from the '**Reality**' which ever existed at their arm's length.

How could we just overlook and overtake the '**Reality of Root**' in X,Y&Z **3D- Cartesian frame**? For an instant, we go to the **minus infinity** and to the **plus infinity** just leaping over the **Root** in 1D measurement. But we have got to comprehend that there exists only a **positive infinity** with respect to the **Root**. It is only our so firmly accustomed **linear thinking** which prevented us from exploring the Reality vested at the '**Absolute Root**'. Every measure that starts from the '**Absolute Root**' is '**positive**' and there could be nothing worth to be addressed as **negative** in these Worlds.

1.3 The '**Distance**' starting from the '**Absolute Root**' to the '**Infinity**' is the axis of the '**4th Dimension**'.

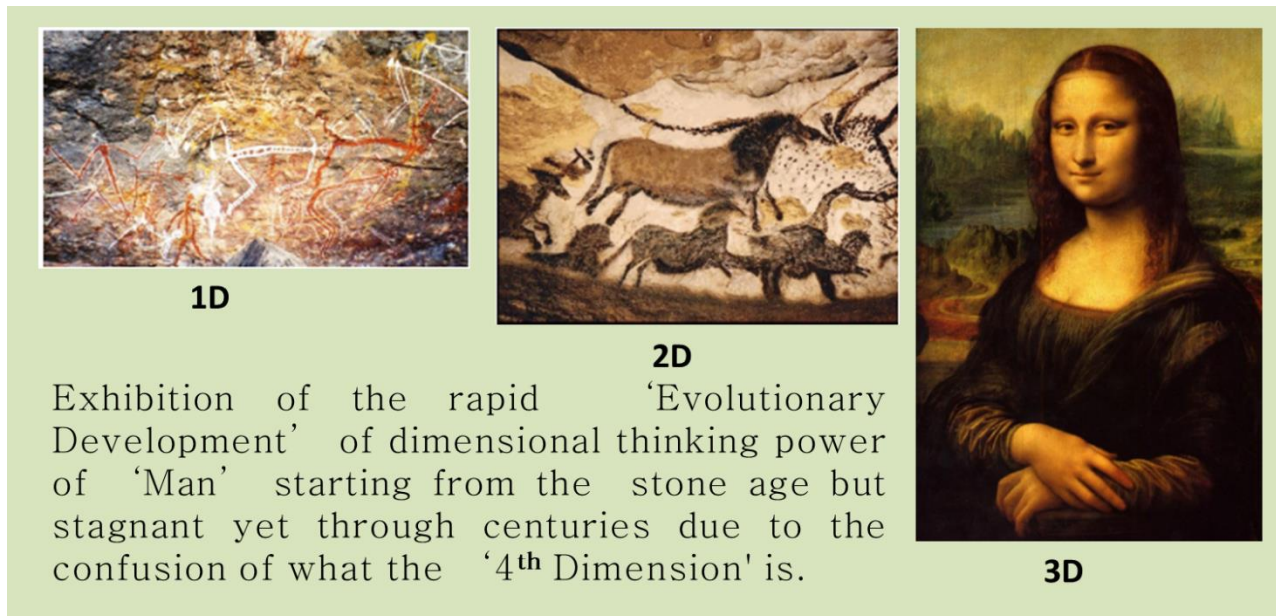


FIGURE-01(Age Vs Dimensional Thinking Power of Man)

1.4 The absolute root could exist at any point and hence there is no '**Singularity**' at all anywhere in these Worlds. At the same time there is no singular '**Origin**' at all for the Worlds and in contrary, there is no '**End**' as well. Origin and End are the essential destinations requested by our inborn inherited **linear thinking**.

1.5 Why **negative axes** are plotted in the Cartesian Plane?, and it is the exact point where people were misguided to overlook the **Reality of the 4th Dimension** vested in the **Absolute Root**. Therefore the Scientists of **alternative thinking** of the 21st century, have got to look in to the **Root** to observe the '**Reality of Matter**' without going far away exploring of **infinities** positive or negative.

1.6 With regard to our captured subject matter of '**Matter**'; Scientists would never be able to nominate a particle as an '**Elementary Particle**' because, that is also made up of another set of infinitesimal particles of the **dropped scale**.

1.7 Particle Physicists make elementary particles collide aiming observation of the **root cause** behind origination of 'Matter'. But the **particle consistency** of 'Matter' could never be observed so further in to the microscopic extremity, rather than observation just as a flux of 'Energy'. Things are naturally **dark** beyond the extreme limit of the narrow '**Linear Domain**' of our observation.

1.8 Cosmologists are engaged in theorizing the states of matter beyond the extreme limit of macroscopic scale by means of Astronomical findings. '**Light**' is the source as a whole, to bring information to the Astronomer but to be frank, is Light a **trustworthy** messenger? Light could have undergone to lots of **deformations** during the long journey passing through Galaxies, such as; Diffraction, Refraction, Reflection and Redshift etc. As such how could Cosmologists declare that the Universe is Expanding from a Big Bang? It is a mirage and also never to forget that we are sitting in a '*merry go round*' (**Galactic Vortex**) to observe everything like moving off.

1.9 Therefore the things beyond the two extreme ends of our observable **linear domain**, beyond the magnifying capacity of man-made tools, are naturally '**Dark**' for us. In other words the dynamics of '**Matter**' beyond the narrow **linear domain of 'Light'** is completely dark for the analytical Exploration of Science.

Man is fed with **information** that he gets through his five bodily sensory organs and **Repeatability** of the information is the logic behind analytical measures of Science.

But Scientists should not forget that the sixth organ- '**Mind**' is still outstanding and '**Mind Exploration**' can break through the darkness towards the **Reality**, where all the analytical tools of Science fail to reach.

'**Logical Reasoning**', '**Mathematics**' and '**Philosophy**' are the sharp analytical tools of '**Mind Exploration**' to break through the narrow domain of '**Linear Measurements of Science**'.

2. THE THREE STATES OF 'MATTER':

If we ask the question, 'What are the three states of Matter?', even a student of junior secondary level could answer as; '**Solid State**', '**Liquid State**' & '**Gas State**'. But is that enough for a Scientist of common sense to be satisfied? Then what is Light?, what is Heat?, What is Electron?, What is Solar Wind?, What is Vacuum? And are they all not '**Matter**'?

Some wonderful theorizations from the 20th century declare that, light is massless. But Scientists of **alternative thinking** of the 21st century, have to comprehend that there could be nothing massless in these Worlds.

'**Matter**' as a whole, is of '**Mass**' and belonged to the three fundamental categories as follows;

1. **Medium Matter** (of static particle consistency)
2. **Energy Matter** (of particles in **exterior Linear Dynamics**)
3. **Atomic Matter** (of particles in **interior Rotary Dynamics**)

2.1 Structure of Matter:

How could a particle be declared without defining of its **Structure**? What is the definition in the so far developed background Science for **Boundary** of any elementary particle?

A clever Logician could question 'How light rays are reflected by atomic matter? As an essential requirement, there should be a rigid **Surface** for the particle to reflect back light rays.

If there balloon like or soap bubble like **Skins** for particles, then the question is vaguely answered. But as yet, what is the bond between the particles of the **Skin Membrane**?

Besides that, the skin membrane should be tightly tensioned by a strong bond and what is the bond?. If the **Pressure** inside of the particle is not adequately high, then **photons** of light rays could not be reflected just as fully elastic collisions. If a percentage of **kinetic energy** of a light ray is lost at the collision, then it cannot plot the picture in our eyes.

That is why **Matter** is not observed by us when it is in the **Gas State**.

$\sin(\theta) \approx \theta \approx (r/R) \quad R \gg r$

$T = t \times \sin(\theta/2)$

$t \approx (P - P_o) 2\pi r (r\theta)$

$T \approx (P - P_o) 2\pi r (r\theta) \times (\theta/2)$

$T \approx (P - P_o) \pi r^2 \theta^2$

$F_i = \pi r^2 \times P_i$

$F_e = \pi r^2 \times P_e$

For stability of a skin particle;

$F_i - F_e = T$

$\pi r^2 (P_i - P_o) = (P - P_o) \pi r^2 \theta^2$

$(P_i - P_e) = (P - P_e) (r^2/R^2)$

$P_i \gg P_e \quad P \gg P_e$

$P_i/P = r^2/R^2$

THEORY OF SKIN
BOUNDARY
OF MATTER

‘Pressure of a particle is proportionate to the inverse square of its Radius’ /2009

A Particle cannot be declared without defining its Boundary & Structure

$P = \psi / r^2$

P-is the pressure in the particle

FIGURE-02(Structural Relation of Particles)

When atomic particles are heated, **Pressure** inside 'P_i' is increased and hence pressure gap (P-P_i) between skin particles is decreased and at the same time size of the skin particles is increased as per the above formula $P = \psi/r^2$.

Then the entire volume of the atom too is increased and proportionately, **Density** is dropped. That's why **Matter** in **gassy state** goes up in the atmosphere.

Besides that we can't **observe** Matter in the gas state because **Photons** of a light ray are not **elastically reflected** by low tensioned boundary skin.

Then a reader may point out that '**skin** of a balloon is more **stressed** when it is expanding but why elementary particles behave differently? **Skin tension** is loosening when particles are expanded?

Yes, balloon is not a good example to match with particles but take a **soap bubble** and isn't the **Skin** becomes weaker when the bubble is expanding? The theory of '**Skin Boundary of Matter**' explains how it happens as demonstrated in the figure-02.

2.2 Dynamics of Matter:

Structure alone could not define a **Particle** unless its **Dynamics** is addressed analytically.

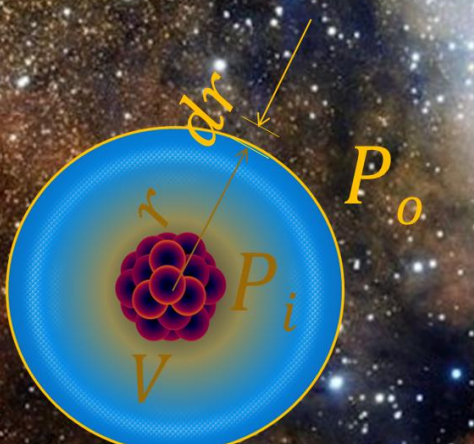
2.21 **Atomic Matter** could have some external dynamics also but its '**Mass**' is entirely composed by its '**Interior Kinetic Energy**' and '**Volumetric Energy**'.

2.22 '**Mass**' of **Energy Matter** is limited only to its **Volumetric Energy** but it gains **Kinetic Energy** too by its **External Linear Dynamics**.

2.23 '**Mass**' of **Medium Matter** is limited only to its **Volumetric Energy**. But it doesn't mean that Medium Matter (Vacuum) remains in the **dead state** forever, because the static medium too could be

developed as a speedy **energy flux** again by the contraction towards the gigantic **Vortex** of a **Black Hole**.

$$\text{Mass} = \frac{\text{Particle consisted kinetic energy}}{\text{Particle consisted volumetric energy}} = \frac{\frac{1}{2}Mc^2}{PV}$$



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Volumetric Energy:
Energy in particle expanding
 = (Pressure gap) × (Surface area × dr)
 $= P \int_0^r 4\pi r^2 dr$
 $= P \frac{4}{3} \pi r^3$
 $E_v = PV$

KINETIC ENERGY :
 A force is required to move a mass 'M', from the stillness to speed 'v' and the impulsive force 'F_i' is defined as the change of Momentum per time 't'.
 $F_i = [(\text{Final Momentum}) - (\text{Initial Momentum})] / \text{time}$
 $F_i = [(Mv) - (0)] / t = Mv/t$
 If the distance traveled by the mass to get that velocity is d, then $d = v \times t$.
 Work done = applied mean force × distance
 $= (F_i/2) \times d = \frac{1}{2} M v^2$ = kinetic energy gained by the mass
 Kinetic Energy = $\frac{1}{2} M v^2$

MASS IS THE SPECIFIC ENERGY DENSITY OF MATTER

FIGURE-03 (Definition for Mass of Elementary Particles)

3. THE MEDIUM MATTER:

3.1 **Vacuum** is the unique evidence for the category of **medium matter** and it is of '**Pressure**' and '**Density**' as well. (The parameters have already been derived as; ref: 'Dynamic Model of Atom'/2017 at <http://www.cyrilhtgamage.com/images/pdf/0022.pdf>).

3.2 **Pressure** and **Density** of the trapped space inside of any **Elementary Particle** could differ as per the **Structural Relation** ; $P = \psi / r^2$ where ψ is the **particle constant**.

3.3 The speed lost **Energy Particles** such as **Light, Heat** and **Electrons** too are becoming static particles of the **vacuum medium** by expanding of their **Volume**.

3.4 If **Dynamics** and **Structure** of the **Vacuum** were correctly addressed by the famous Scientists of the 20th century, they could not have come up with their raw imaginations such as; '**Strings**', **Curvatures** or **Wormholes** etc. which possess no firm theoretical basis or practical proof as yet.

THE ENTITY OF MEDIUM MATTER

A controlled Mass of medium is accelerated from v_1 to v_2 and the pressure drop from P_1 to P_2 is observed.

Size of particles of Medium Matter is gradually dropped and hence Volume too is gradually decreased. (observed towards a black hole)

$E = \text{kinetic Energy} + \text{Volumetric Energy}$
 Total Energy at both states is not changed and hence $E_1 = E_2$
 $\frac{1}{2} m v_1^2 + P_1 V_1 = \frac{1}{2} m v_2^2 + P_2 V_2$
 at the extreme state conditions $v_1 = 0, v_2 \Rightarrow c, V_2 \approx 0$

$$P = \frac{1}{2} \rho c^2$$

P-is the medium pressure

The phase transformation of 'Medium Matter'(VACUUM) in to 'Dark Matter' which could take place by contraction towards a Black Hole vortex.

A Medium cannot be declared without defining its Pressure and Density

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Consistency of the medium is made up of 1)-speed lost Solar Wind, 2)-speed lost Electrons, 3)-speed lost Heat particles and 4)-speed lost Light particles which combination is belonged to the fundamental category of 'Medium Matter'.

FIGURE-04(the Medium Relation)

3.5 As per the above off laboratory analysis, readers may observe the **Nature Probability** of creating **Dark Matter** out of the very substance of **vacuum medium** itself.

This is the phenomenon behind a **Black Hole** and hence the gigantic **Medium Vortex** is capable of **Contracting** all the **Visible Matter** in Worlds, in to **Dark Matter**. The static medium- '**Vacuum**'- is accelerated towards the tornado like **Rotary Dynamic** medium vortex as a flux of energy which is gradually **condensed** on the way as shown in the figure-04.



FIGURE-05(a Tornado among Galaxies)

3.6 Phenomenon behind a Tornado and a Galactic Vortex is similar in point of view of **Pressure Dynamics** of medium. The difference is only with the type of the vortex. Tornado is a **3D Conical Vortex** by which matter is centralized and distributed up in to the upper atmospheric layer of low pressure.

3.7 Galactic Vortex is a **4D Spherical Vortex** by which Matter is contracted (with a structural phase transformation) and condensed towards the **Absolute Zero**.

3.8 **Black Hole Vortex** is naturally reversed in to an Expansion again creating Worlds of Visible Matter, but starting from Hydrogen.

3.5 Fortunately the entire thing of the **Worlds**, could not end up, being **Nothing** ultimately at the **Black Hole trap**, because of the precious **Reversibility** in **Space Rotary Dynamics**.

3.6 **Matter** should have been vanished at the extreme end of **Contraction** in to **Nothing** by losing its **Volume**, if not the **Rotary Dynamics** were **Reversed**.

3.7 In contrary, **Matter** should have been vanished at the extreme end **Expansion** in to **Nothing** by dilution of its **Mass**, unless a **Black Hole Vortex** of **Rotary Dynamics** was formed to centralize everything back.

4. THE ENERGY MATTER:

There are lots of misinterpretations with regard to the entity of '**Energy**' in the background art. That is mainly because the difference between '**Energy**' and '**Energy Matter**' has not been defined well enough in the background art.

For an instant, '**Sound**' is 'Energy' but it is not an 'Energy Matter' at all. Similarly **Gravity**, **Electricity**, **Magnetism** etc. are 'Energies' and deal with '**Matter**' but they are not '**Energy Matter**' by themselves at all.

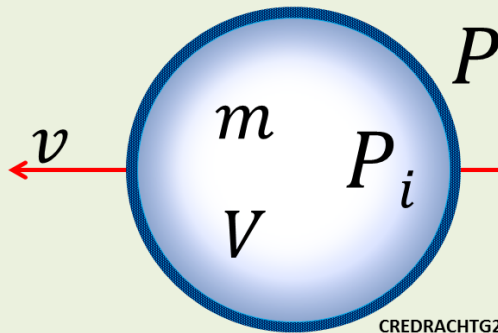
Only the particle substances such as; **Solar Wind**, **Electrons**, **Light** and **Heat** are belonged to the fundamental category of '**Energy Matter**'.

4.1 Structure of Energy Matter:

Structure of an **Energy Particle** is a soap bubble like sphere comprised with a tensioned '**Skin Membrane**' which is also made up of similar type of particles of the **dropped scale**.

The mechanism behind how the skin particles are tensioned together as a membrane is as same as described by figure-02, under the section 2.1.

THE ENTITY OF ENERGY MATTER



There are two possible end entities for an Electron;

1. When it is highly accelerated through a frictional medium it is completely depleted in to Light and Heat energy by projecting the skin particles off.
2. Speed lost Electron becomes a Vacuum particle being expanded.

A Particle cannot be declared without defining its Structure & Dynamics

Energy of Energy Matter

$E = \text{kinetic Energy} + \text{Volumetric Energy}$

$$mc^2 = \frac{1}{2}mv^2 + (P_i - P_o)V \quad (\text{say pressure gap } P = P_i - P_o)$$

$$mc^2 = \frac{1}{2}mc^2 + PV \quad (\text{when the particle is moving at } v=c)$$

$$P = \frac{1}{2} (m/V) c^2$$

$$P = \frac{1}{2} \rho c^2$$

P-is the pressure gap



Electrons, Heat and Light particles of exterior linear dynamics are belonged to the fundamental category of 'Energy Matter'

FIGURE-06(Structure and Dynamics of the Energy Matter)

4.2 Dynamics of Energy Matter:

Energy Matter is not recognized by the Scientists when it loses its Speed.

Electron is the Elementary Particle of the category but the biggest one as well, in comparison with size of the other members such as, Light & Heat.

No interior Dynamics or Materials inside of the particle rather than some Medium Matter entrapped in the balloon like Skin Membrane.

4.21 When the **Electron** happens to move through any frictional medium, the external pressure is immensely dropped due to shearing of the surface. Then the tension of the skin is grown high and the particle tends to be contracted smaller in size. In that exercise, skin particles are shot out as **Energy Rays** to be recognized by the Scientists as **Light** and **Heat**.

4.22 A worn out **Electron** is lesser in **Mass** than a fresh one and at the speed of light it is expected to be completely worn out in to **Light**.

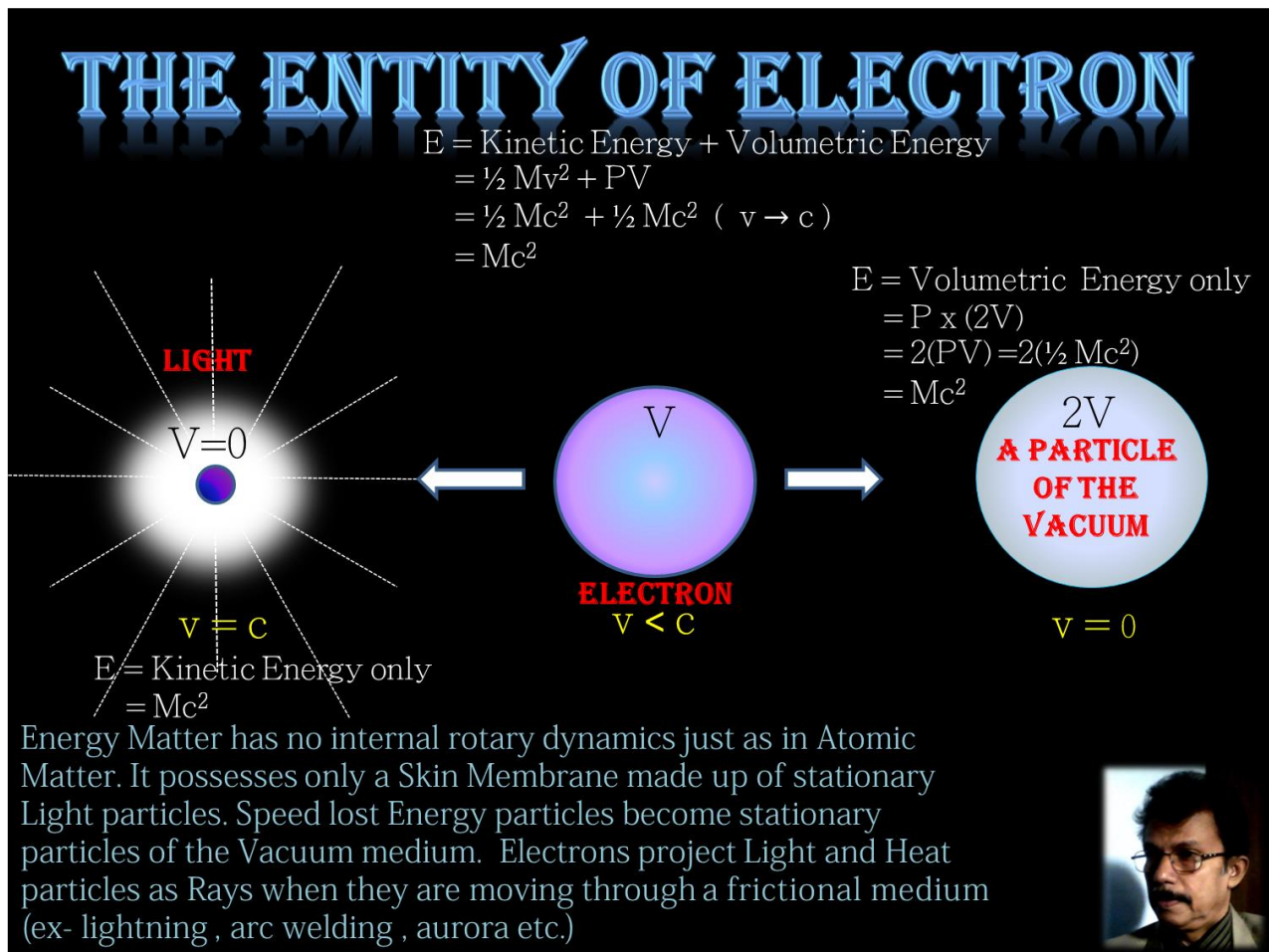


FIGURE-07(extreme end realities of Electron)

In contrary, a speed lost Electron becomes a static **Vacuum Particle** by expanding in to double volume. But in any case, **Mass of Energy Matter** is not either lost or created.

5. THE ATOMIC MATTER:

THE ENTITY OF ATOMIC MATTER

Electrons
Skin particles are projected off as white light
Dark Matter
Electrons are absorbed in to Protons and becoming of Neutron Mass.

A Particle cannot be declared without defining its Structure & Dynamics

Energy of Atomic Matter

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$E = \text{Exterior Kinetic Energy} + \text{Interior Kinetic Energy} + \text{Volumetric Energy}$

$$mc^2 = \frac{1}{2}mv^2 + \frac{1}{2}mc^2 + (P_i - P_o)V \quad (\text{say pressure gap } P = P_i - P_o)$$

$$mc^2 = \frac{1}{2}mc^2 + PV \quad (\text{when the particle is stationary } v=0)$$

$$P = \frac{1}{2} (m/V) c^2$$

$$P = \frac{1}{2} \rho c^2$$

$$P = \frac{1}{2} \rho c^2$$

P-is the pressure gap

Atoms, Neutrons, Protons, and Neutrinos (Dark Matter) are belonged to the fundamental category of 'Atomic Matter'. They are of interior rotary dynamics

FIGURE-08(Structure and Dynamics of Atomic Matter)

5.1 **Structure** of Atomic Matter comprises with a **Skin Membrane** of Mass, **Interior Space** of Mass, **Electrons** in orbital motion around the spinning **Nucleus** which is made up of **Neutron & Protons**.

5.2 **Dynamics** of Atomic Matter is described in two different manners as follows.

- I. The elementary particle **Atom**, can be blasted in to **Energy Rays** by either **Collision** with strong external energy rays

(nuclear fission) or by increasing external **Pressure** (nuclear fusion).

- II. The elementary particle 'Atom' is **Contracted** in to nuclear mass (**Neutrons**) and further to **Dark Matter** by drop of external **Pressure** at reaching towards **speed of light** by acceleration against the **Vacuum Medium**.

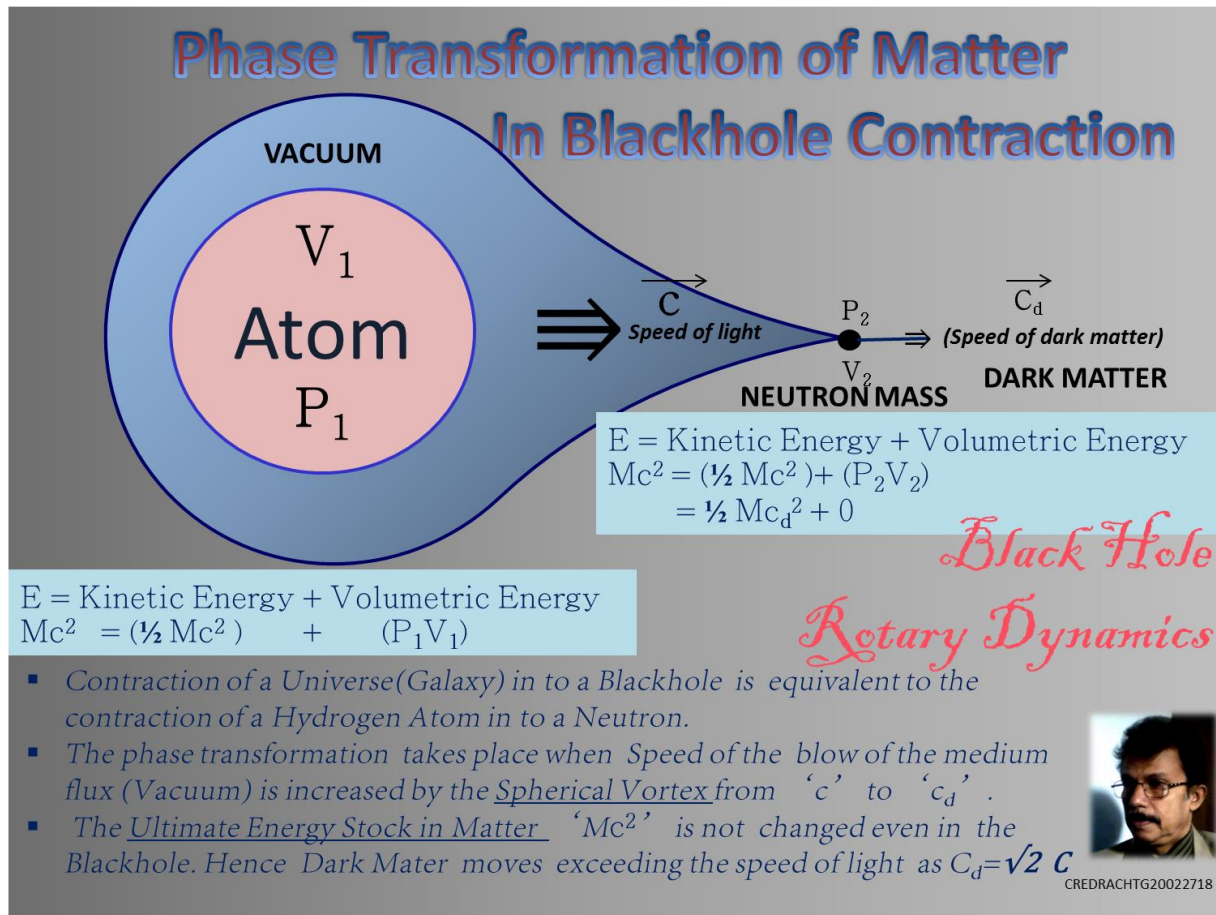


FIGURE-09(Contraction of Matter towards a Black Hole Vortex)

5.3 What is the **densest particle** as Scientists have ever declared in these Visible Worlds? It is the **Neutron** with no arguments about that. **Radius** of a Neutron is assumed nearly as of the same class of the smallest **nucleus** (10^{-13}cm).

Hence **Density** of a Neutron =Mass/Volume

$$=1.675 \times 10^{-24} \text{g} / \{4\pi/3 \times (10^{-13})^3\} \text{cm}^3$$

$$\underline{\rho_n \approx 0.4 \times 10^{15} \text{g/cm}^3};$$

Let's simply substitute that value of density in the **Medium Relation** $P = \frac{1}{2} \rho c^2$ and you will come up with the **Pressure** of Neutron Mass.

$$P_n = 1/2 \times (0.4 \times 10^{15} \text{g/cm}^3) (3 \times 10^{10} \text{cms}^{-1})^2$$

$$\underline{P_n \approx 1.8 \times 10^{35} \text{ dynes/cm}^2};$$

5.4 A **Neutron** is just like a **Planet** made up of **Dark Mater** particles ('Moola Atoms') in the scalar consistency. Hence, the Pressure in **Dark Matter** must be the same value as derived above. (*this is somewhat like the case; density of Calcium, 5.5 g/cm³- is nearly as same as the density of our planet-Earth*)

5.5 What is the Pressure generally in an Atom? It is the very Pressure needed for a **Neutron** to be expanded in to a **Hydrogen Atom** in an expanding black hole. The reaction is named as the '**1st Fundamental Cosmic Reaction-(FCR-1)**' in the publication 'Dynamic Model of Atom'/2017 at

<http://www.cyrilhtgamage.com/images/pdf/0022.pdf>)

The Pressure in an Atom can be derived therefore by balancing Energies at both side of the **FCR-1** as calculated upon the edited clause bellow.

Edition /2018 upon ' Dynamic Model of Atom' /2017:

$$\begin{aligned} \text{Ultimate energy stock in a Neutron} &= \text{ultimate energy stock in Hydrogen atom} \\ (M_N)c^2 &= \text{Kinetic Energy} + \text{Potential Energy} \\ &= \frac{1}{2} (M_H)c^2 + \text{Volumetric Energy} \\ &= \frac{1}{2} (M_H)c^2 + P_0 V_H \end{aligned}$$

(let us substitute known values in the equation. P_0 is the **external** medium pressure)

$$\begin{aligned} (1.675 \times 10^{-24} \text{ g})(2.998 \times 10^{10} \text{ cm/s})^2 &= \frac{1}{2} (1.673 \times 10^{-24} \text{ g})(2.998 \times 10^{10} \text{ cm/s})^2 + P_0 \left[\frac{4}{3} \pi (1.0 \times 10^{-8})^3 \text{ cm}^3 \right] \\ P_0 &= (8.385 \times 10^{-25} \text{ g})(2.998 \times 10^{10} \text{ cm/s})^2 \div \left[\frac{4}{3} \pi (1.0 \times 10^{-8})^3 \text{ cm}^3 \right] \\ &= (7.536 \times 10^{-4} \text{ g}^1 \text{ cm}^2 \text{ s}^{-2}) \div [4.188 \times 10^{-24} \text{ cm}^3] \\ &= 1.799 \times 10^{20} (\text{g}^1 \text{ cm}^1 \text{ s}^{-2}) \text{ cm}^{-2} \end{aligned}$$

$$\text{Pressure of the vacuum medium of the free space:- } P_0 = 1.8 \times 10^{20} \text{ dynes cm}^{-2}$$

Edition: P_0 is the **Internal Pressure of Hydrogen Atom**. (Atomic interior pressure does the work against tension of the Skin membrane but outer pressure could be lesser with no significance in the calculation)

5.5 Let us derive the size of a dark matter particle (*Moola atom*) by means of the **Structural Relation** of Particles $P = \phi / r^2$

$$\frac{\text{Pressure of Atom}}{\text{Pressure of Moola Atom}} = \frac{(\text{radius of Moola Atom})^2}{(\text{radius of Atom})^2}$$

$$\frac{1.8 \times 10^{20}}{1.8 \times 10^{35}} = \frac{(R)^2}{(10^{-8})^2}$$

$$R^2 = 10^{-31}$$

$$R = 3.1 \times 10^{-16} \text{ cm}$$

- ❖ **Special Note:** (above derivation is the scalar size of a particle of Dark Matter as named as 'Moola Atom'. I surmise that, 'Neutrino', the infinitesimal particle that Scientists have already found, could probably be the same particle with unique ability to exceed the speed of light.)

6. SCALAR CONSISTENCY OF MATTER:

6.1 The Scientists and Philosophers so ever bone in the great human civilisation made their utmost attempt to break down '**Matter**' in to the smallest **structure** as possible to observe the most **Elementary Particle** of its make.

6.2 **Atom** was the **milestone** found in the above historical exercise but particle physics has proven existence of more finer **structures** such as **Electrons, Protones, Neutrons, Neutrinos** and **Photons** etc which behave morover as **Energy Rays** in their **dynamics**.

6.3 However a particle cannot be declared for acceptance without defining its **Structure** and **Dynamimics**.

6.4 Atom is belived to be found from several senturies ago but without a complete definition either for its **Structure** or **Dynamics**. What is the boundary of an Atom? What happens to Atom if it is accelerated to the speed of light?

6.5 Theory of 'Scalar Consistancy of Matter' /2018:

“Elementary Particles are made up of another finer set of **Elementary Particles** of the **Dropped Scale**”

It also emphasises that Man is to observe only a narrow **scalar domain** of the entire thing of the 'Worlds'.

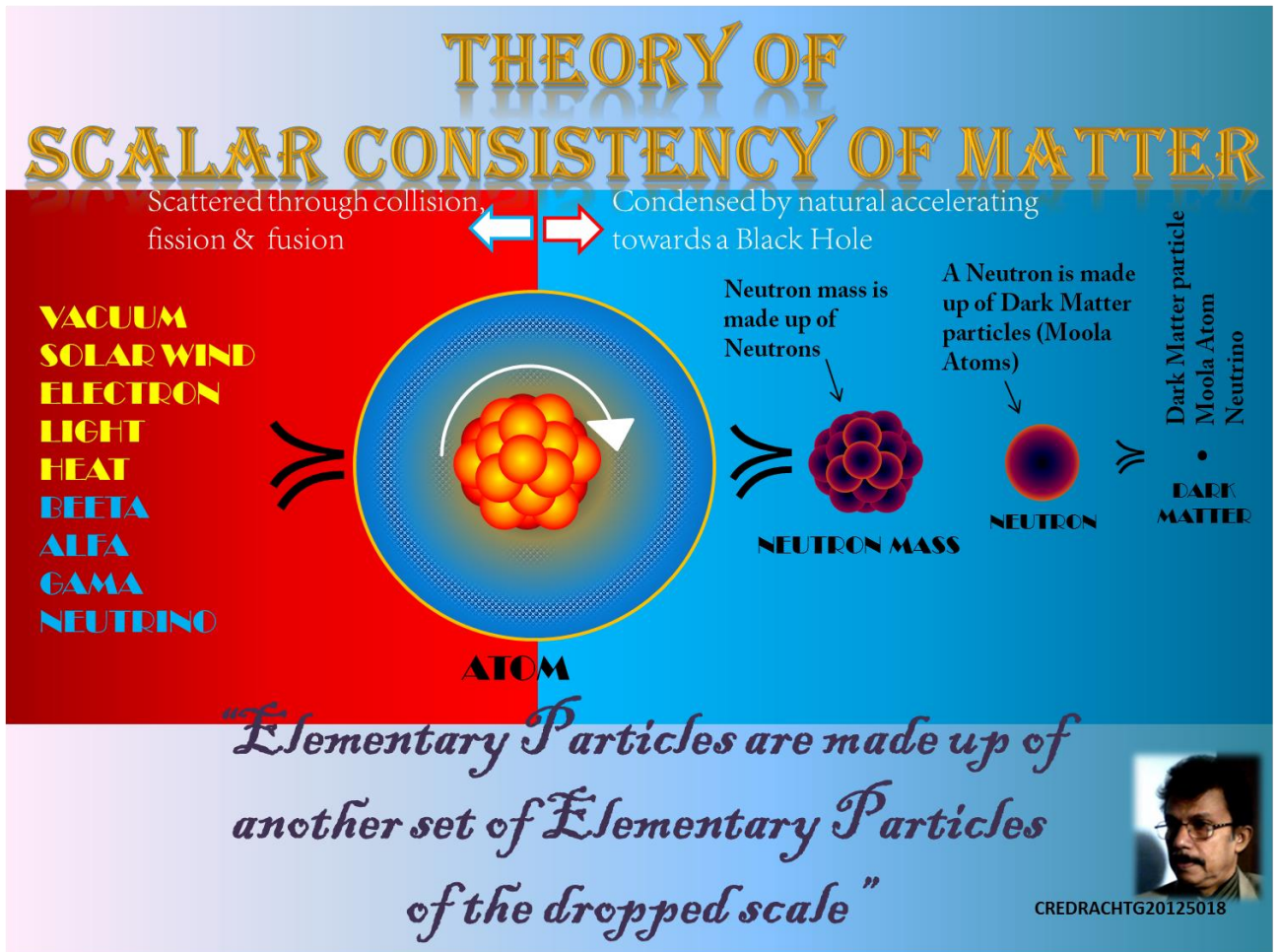
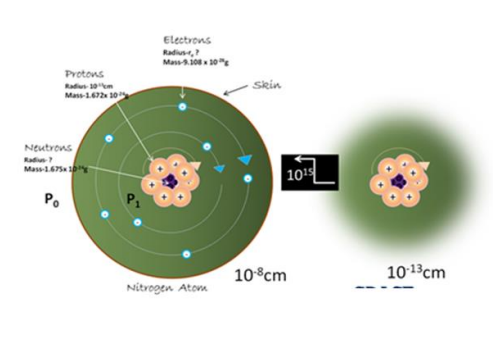


FIGURE-10 (Scalar Consistency of Matter)

6.6 In the scalar sequence of '**Atomic Matter**', there are several **Worlds** in existence within our observable domain at each volumetric drop of nearly **10¹⁵**.

6.61 Atomic World : Nuclear World

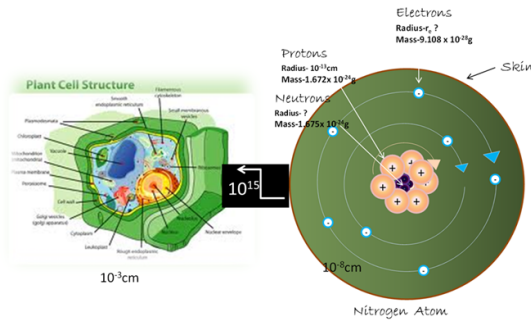


Atomic World : Nuclear World

$$= [4/3 \pi (10^{-8})^3] : [4/3 \pi (10^{-13})^3]$$

$$= \underline{\underline{10^{15} : 1}}$$

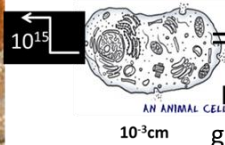
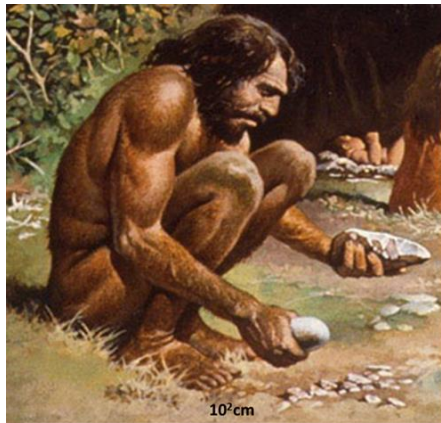
6.62 Cellular World : Atomic World



$$\begin{aligned} \text{Volume of Cell : Volume of Atom} \\ &= [4/3 \pi (10^{-3})^3] : [4/3 \pi (10^{-8})^3] \\ &= \underline{\underline{10^{15} : 1}} \end{aligned}$$

(In calculating volume, it is assumed a cell is also nearly spherical in shape)

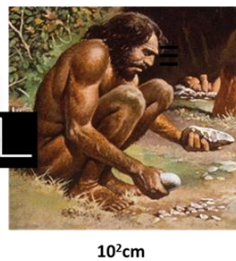
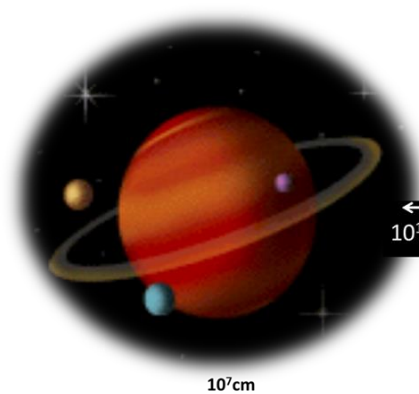
6.63 Animal World : Cellular World



$$\begin{aligned} \text{Volume of Animal : Volume of Cell} \\ &= [4/3 \pi (10^2)^3] : [4/3 \pi (10^{-3})^3] \\ &= \underline{\underline{10^{15} : 1}} \end{aligned}$$

In the analysis Animal is assumed to be generally a globe of one meter in radius .

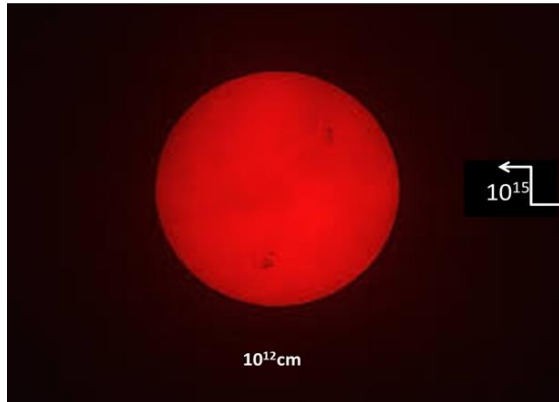
6.64 Planetary World : Animal World



$$\begin{aligned} \text{Volume of Planet : Volume of Animal} \\ &= [4/3 \pi (10^7)^3] : [4/3 \pi (10^2)^3] \\ &= \underline{\underline{10^{15} : 1}} \end{aligned}$$

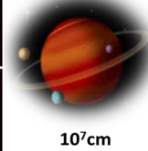
Radius of a solid-core planet is generally taken as 10⁷cm in radius

6.65 Solar World : Planetary World



Star World : Planetary World

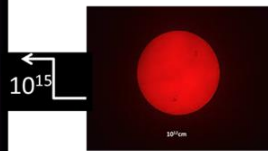
$$= [4/3 \pi (10^{12})^3] : [4/3 \pi (10^7)^3]$$
$$= \underline{\underline{10^{15} : 1}}$$



6.66 Solar System : Star World



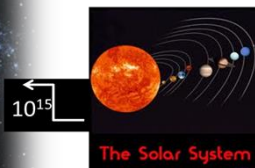
10¹⁷cm



Solar system: Star World

$$= [4/3 \pi (10^{17})^3] : [4/3 \pi (10^{12})^3]$$
$$= \underline{\underline{10^{15} : 1}}$$

6.67 Galaxy : Solar System



10¹⁷cm

Galaxy: Solar System

$$= [4/3 \pi (10^{22})^3] : [4/3 \pi (10^{17})^3]$$
$$= \underline{\underline{10^{15} : 1}}$$

6.68 If the entire volume of a Galaxy is considered with its vacuum bulb too, it is about the size of 10^{27} cm in radius. But only the size of the '**Visible Matter Vortex**' is considered as a Galaxy. (We are living within the region of the 'Visible Matter Vortex' of the radial size of 10^{22} cm in the **Milky Way Galaxy**.)

6.7 Conclusion:

Whence man cannot observe either microscopic or macroscopic end realities of **Matter**, then how could he wish for '**Origin**' or '**End**' for the **Universe**?

*Reversibility of
Space Rotary Dynamics*

Black hole Contraction: (Matter ⇒ Dark Matter)

The fundamental Structural Phase Transformation takes place when Matter is blown towards a Black Hole by the low pressure center of the 4D-Spherical Vortex.. The Atomic Structure of Visible Matter could not sustain against Dynamics at speed of light.


Black hole Expansion: (Dark Matter ⇒ Matter)

The fundamental Structural Phase Transformation takes place when Pressure gets increasing at the Black Hole by slowing down of the Spherical Vortex due to lack of materials. Dark Matter expands in to Hydrogen as the initiation of Universe Building.

Reversibility for Existence:

At the extreme end Contraction, Matter could lose its 'Volume' to become almost 'Nothing'. Similarly at the extreme end Expansion, Matter dilutes its 'Mass' to be almost 'Nothing'. (Dark Matter ⇌ Matter)

*Hence the 'Existence' of Worlds is assured
by 'Reversibility' of 'Space Rotary Dynamics'*


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THE END

08th October 2018 by Cyril H Thalpe Gamage