# MASS & ENERGY of MATTER

**SOLVE IT NOW**

or

*CONSERVE IT AS A PARADOX FOR THE FUTURE*

**Mass** and **Energy** should no more be paradoxes and the scientists of 21st century can solve it. As brilliant Scientists and Students of the 21st century, with open mind and logical thinking, you would agree that 'Physical Science' should not become conservative such as History or Archeology. Theories, Principles and accepted Laws in Physical Science must be frequently challenged, tested and filled with new ideas to be **renewable** like a natural water resource.

Then why should our kids to follow all the wrong analytical paths made by the centuries late scientists in their struggle in finding of world Realities?  Don't we compromise the ability of the younger generations to march upon their own creative paths towards reality?  This has to be recognized as '*Mental Pollution*' by a '*Global Environmental Convention*' and unnecessary subject contents have to be removed from the syllabus. But it seems that, the '*Global Knowledge Departments*' need to conserve all that paradoxes as unsolved forever on behalf of their academic dignity and survival.

Aim of this letter is to provide some guide for students of logical thinking to reach towards the reality by themselves without filling their head with all that unfiltered huge stock of knowledge in '*Physical Science*'. If you can simply answer the below questions, the paradox of Mass & Energy is solved in two or three A4 size pages.

1. *What are the main Energy categories that Matter could possess in this world?*
    i. **Kinetic Energy**............... $\boxed{E_{k=} \tfrac{1}{2}mv^2}$  where 'm' is mass and 'v' is the velocity of motion)
    ii. **Volumetric Energy**....... $\boxed{E_{V=} PV}$   where 'P' is the medium pressure and 'V' is the volume occupied by the mass 'm')

    **1.1 Kinetic Energy** is born when the mass is *moving* and **Volumetric Energy** is born when the mass occupies its body in the space against *pressure*.

    As we know, Sir **Isaac Newton** has defined the **Kinetic Energy** as above and you can  derive it again such that;

    ***Kinetic energy of any moving body =work done by any external force to stop it.***

    $E_k$ =( Impulsive force against motion) x (distance up to stillness)

    =(change of momentum per time 't') x (mean velocity x time 't' taken to stop)

    $$=\left(\frac{mv-0}{t}\right) \text{ x } \tfrac{1}{2}(v+0)\text{t}$$

    $E_{k=} \tfrac{1}{2}mv^2$

But herein we address **ultimate states** (conditions) by replacing velocity 'v' by the speed of light 'c' because that is the *ultimate velocity* that *Atomic Matter* could gain in this world.

$$E_{k=} \tfrac{1}{2}mc^2$$ ..........................ultimate kinetic energy of atomic matter----------------------------(1)

**1.2** '**Volumetric Energy**' is defined as the energy possessed by Matter, in claiming a space(volume or room) in the space where it exists. (This is simply proven mathematically by consideration of **work done against pressure** 'P', when the mass is expanded from zero to the present volume 'V').

$$E_V = P \int_0^R (4\pi r^2) dr$$ ........ (The body is considered as a sphere of radius 'R' for simplicity)

$$E_V = P[\tfrac{4}{3}\pi r^2 \langle_0^R\rangle]$$

$$E_V = PV$$ ..........................volumetric energy can also be addressed as potential energy------ **(2)**

(Any sort of Energy that we come across in this world can be put in to the two above categories or if you find any difficulty, please contact me by 'chtgamage at gmail.com' or refer to the pdf 'Space Dynamics-V1/2009' in any web search engine)

2. *What is 'Medium Pressure'?*
Definition:
'**Medium Pressure**' is defined as the *'pressure developed at an obstacle, while the medium is moving at its critical velocity'*.

Suppose any medium mass 'm' of density 'ρ' is moving at a velocity 'v', and its kinetic energy is totally lost due to an obstacle placed in the path of moving. Then a certain stationary volume 'V' of the medium matter is formed around the obstacle and pressure rises up to 'P'. In that phenomenon;
(Kinetic Energy loss)   = (Volumetric Energy gain)
         (½ **mv²**-0)   = (PV-0)
ie                P =½ **(m/V) v²**
                 P=½ (ρ) v²

Then we can consider ultimate state conditions of the moving medium. (for an example velocity of sound is the *critical velocity* of the atmospheric medium. it depends directly upon the *pressure* of the considered elevation of the atmosphere and no air particle could be moved by the sound wave exceeding its critical velocity. If you know pressure and density of air at any elevation of the atmosphere, you can derive velocity of sound by means of the above expression.)

The *Space Medium* is made up of non-atomic particles (Energy matter like electrons, light, and heat particles are expanded ultimately in to medium particles of **stillness**) and they too possess the quality of a gassier-fluidic medium like air. Critical velocity of the *space medium*

is same to the *speed of light*. (Any electromagnetic wave such as Radio, TV or Radar cannot exceed the critical velocity 'c', in transmitting energy through the space medium. Not only waves but also energy rays such as; light, heat, X-ray, γ-ray etc. cannot exceed the critical velocity 'c' in the space medium. Please refer to the pdf article 'Space Dynamics-V1/2009'for derivation of *Density '$\rho$'* and *Pressure* of the *space medium* in our Galaxy)

Now you can find what the '**Medium Pressure 'P'** of the space is, by replacing 'v' by 'c' in the expression;

$P = \frac{1}{2}\rho c^2$..................medium relation------------------------------------------------------------------ (3)

3. *Proof for the Einstein's law of Energy Conservation*

If any mass 'm' of **Atomic Matter**, possess a volume 'V' in the space medium, its ultimate energy stock can be divided in to two main categories such as;

*Ultimate Energy Stock 'E' = Kinetic Energy '$E_k$' + Volumetric Energy '$E_v$'*

$$E = E_k + E_v$$
$$=[\tfrac{1}{2} mc^2] + [PV]..................\text{from equations (1) \& (2)}$$
$$=[\tfrac{1}{2} mc^2] + [\tfrac{1}{2}\rho c^2 \times V].....\text{from equation (3), substitute } P=\tfrac{1}{2}\rho c^2$$
$$=[\tfrac{1}{2} mc^2] + [\tfrac{1}{2} mc^2] ........ \text{where m=}\rho V \text{ and '}\rho\text{' is the density of } atomic\ medium$$
$$= \tfrac{1}{2}(m_+ m)c^2$$
$$\underline{E = mc^2}$$

**Conclusion:**

*Energy in 'Atomic Matter' is comprised with 'Kinetic Energy' and 'Volumetric Energy' in half by half.*

4. *What is Mass?*
   1. 'Mass' is directly proportionate to 'Density' of Matter
   2. 'Density' is directly proportionate to 'Energy Stock' condensed in the Matter
   3. 'Energy' cannot be defined where 'Pressure' is zero and where Matter don't move
   4. Therefore 'Mass' is the direct measure of 'Pressure' and 'Mobility' in Matter
   5. 'Mobility' means direct kinetic energy and 'Pressure' means work against vibration
   6. Both parameters 'Pressure' and 'Mobility' cannot be defined without 'Time'
   7. Therefore 'Matter' in the world has no 'Existence' if not 'Chang with Time'.

5. *What are the units of Mass?*

$$Mass = \frac{Energy\ in\ one\ unit\ of\ Matter}{Energy\ in\ one\ unit\ of\ Light}$$

**Definition for mass:**

## 'Mass' is the measure of 'Specific Energy Density' of 'Matter'

(Some physicists still believe 'light' as a *wave* but that is incorrect. Light is a *ray* of line projection of particles. Light, heat and linear projection of electrons of different sizes(X-rays) are belonged to '*Energy Matter*' and they don't respond for Gravity because they don't have *internal rotary systems*. But they possess '*mass*' and become '*space medium particles*' when expanded by losing their speed.  Gravity is a high energy wave through the space medium and it makes '*Atomic Matter*' attract towards the source, because of the *internal rotary mechanism* in atoms. (please refer 'Space Dynamics-V2/2009 for 'Mechanism of Gravity')

<div align="center">END</div>

Special Note :

*We, the Physicists of the 21st century, could never be succeeded in defining of 'Mass' without the enormous contribution by the great scientists Sir. **Isaac Newton**(1643-1727) and **Albert Einstein**( 1879-1955).*

By

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