Equivalency of Momentum and Kinetic Energy and Pythagorean Conservation of Mass and Energy

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Abstract—Accepted equations in the mechanics results that the principle of linear addition is not compatible by addition of static energy and kinetic energy suppose conservation of mass and energy is Pythagorean conservation and too because of momentum conservation it is proved that momentum and kinetic energy are equivalence and equivalency of momentum and kinetic energy results Pythagorean conservation of energy. In fact the momentum conservation does result that the momentum and kinetic energy are equivalence. Too unproved de Broglie wave equation is proved by equivalency of momentum and kinetic energy and this regular paper is included too to the fact that Einstein energy is imaginary.

Index Terms—Kinetic energy, pythagorean conservation of mass, equivalency of momentum

I. INTRODUCTION

In the classic physics kinetic energy is determined by the invariant sentence below that,

$$(1/2)m_0 v^2 - k/r \tag{1}$$

And in the relativity it is defined by the equation that,

$$E - E_0 = E_k = mc^2 - m_0 c^2 \tag{2}$$

In fact some reasons cause accepting that kinetic energy is linear difference of energy and static energy and experiment does verify it, for example invariance of sentence (1) seems conservation of energies and to the same reason it is considered that,

$$E_K \approx (1/2)m_0 v^2$$

Too considered energy of photons among the levels in an atom calculated by Schrödinger equation and Compton Effect and collision of big bodies and high energetic collision of fundamental particles.

of course there are many anomalous phenomenon against in the experiments and for example low energy collisions in quantum physics and lost neutrinos and lost energy of beta decay and measured yield of nuclear explosions that is less than theoretically considered.

Then it is not impossible existence of error in the definition of kinetic energy however here proving an opposite equation for kinetic energy is related to the pure calculation based on the accepted papers.

In fact ever there is a law to change and this is may the same benefit of science.

II. PYTHAGOREAN CONSERVATION OF MASS

According to the equivalency of mass and energy and from plank equation of energy,

$$m_{photon} c^2 = h\nu$$

And then momentum of photon is that,

$$m_{photon} c = \frac{h\nu}{c} \tag{3}$$

It is manifest that a photon is possible to radiate from a static mass like an atom.

Then according to the momentum conservation, momentum and because of the fact that momentum of static mass is zero, It is manifest that generated momentum in the mass should be certainly equal to the momentum of photon (3) and then,

$$\frac{h\nu}{c} = mv \tag{4}$$

In the quantum physics [1] this equation is used to prove the equation of uncertainty principle [2] and then its correctness is not new.

Using equation (3) into the equation (4) appears that,

$$m_{ph} c = mv \tag{5}$$

On the other hand,

$$E = \left(m = \frac{m_0}{\sqrt{1 - (v/c)^2}} \right) c^2$$

Using this famous equation in the equation (5),

$$m_{ph} c = \frac{m_0}{\sqrt{1 - (v/c)^2}} v$$

$$m_{ph}^2 c^2 = \frac{m_0^2}{1 - (v/c)^2} v^2$$

$$m_{ph}^2 c^2 - v^2 m_{ph}^2 = m_0^2 v^2$$

Using equation (5),

$$m^2 v^2 - v^2 m_{ph}^2 = m_0^2 v^2$$

$$m^2 - m_{ph}^2 = m_0^2$$

$$m^2 = m_0^2 + m_{ph}^2$$

This is addition of static mass and photonic mass that it is not compatible by principle of linear addition suppose as a

wonder addition of these masses is compatible by Pythagorean Theorem that static mass and photonic mass are two sides of a rectangle that m is its chord that,
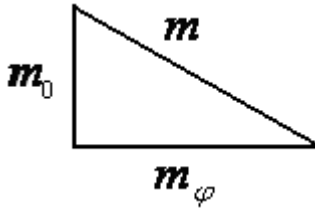

Fig. 1. Pythagorean conservation of mass.

In fact Pythagorean conservation of mass here is incompatible by linear conservation of mass that,

$$m = m_0 + m_{ph}$$

Suppose adding a photonic mass to a static mass is Pythagorean conservation that,

$$m^2 = m_0^2 + m_{ph}^2$$

In fact when we add a kg of photon to a kg of static mass, additional mass is not compatible by linear addition that,

$$1 + 1 = 2$$

Suppose it is accepted that,

$$1 + 1 = \sqrt{2}$$

In fact the static mass and photonic mass are perpendicular together and to the same reason their conservation is Pythagorean.

III. KINETIC ENERGY AND MOMENTUM EQUIVALENCY

The energy of photon is kinetic energy complete and energy of static mass is complete, static energy and then when it is added complete of a photon to a static mass like the face that a photon is added to an atom, because of conservation of energy and the fact that kinetic energy of static mass is zero, it is manifest that generated kinetic energy in the moving mass is sourced complete with energy of added photon e and added photon energy is complete, kinetic energy and then generated kinetic energy in the moving mass is the same energy of photon that it is added to the mass at the station.

In fact it is manifest that the mass m is just included to the two faces of energy, static energy and kinetic energy and then because of the fact that kinetic energy of moving mass is not generated by the static mass, to the same reason kinetic energy of moving mass and kinetic energy of added photon are equal and because that the photon is just kinetic energy then kinetic energy of moving mass and energy of added photon are equal that,

$$E_{ph} = E_K \qquad (6)$$

On the other hand if we multiple c to the equation (5),

$$m_{ph}c^2 = mvc \qquad (7)$$

It is manifest that,

$$m_{ph}c^2 = E_{ph}$$

Using this equation into the equation (7),

$$E_{ph} = mvc \qquad (8)$$

Using this equation in the equation (6),

$$E_K = mvc \qquad (9)$$

The momentum is defined that,

$$p = mv$$

Using this equation in the equation (9),

$$E_K = pc \qquad (10)$$

Because of c constancy it is manifest that this equation appears that momentum and kinetic energy are equivalence.

This is equivalency of kinetic energy and momentum that it is not equal with accepted equation that,

$$E_K \approx (1/2)m_0 v^2$$

IV. PHYTHAGOREAN CONSERVATION OF ENERGY

On the other hand because of below shape equation of relativistic mass that,

$$m^2 c^4 = m_0^2 c^4 + m^2 v^2 c^2$$

And using equivalency of mass and energy appears that,

$$E^2 = E_0^2 + (mvc)^2$$

Because of equivalency of momentum and kinetic energy,

$$E_K = mvc$$

It is resulted that,

$$E^2 = E_0^2 + E_K^2$$

This is against the principle of linear addition that,

$$E = E_0 + E_K$$

And the conservation of energy for addition of kinetic energy and static energy is Pythagorean like the mass conservation and Pythagorean conservation appears that,

Static energy and kinetic energy are perpendicular together and to the same reason their addition is Pythagorean and then,

$$E_K = \sqrt{E^2 - E_0^2} \qquad (11)$$

And finally we should accept that the linear difference of total energy and static energy is not energy suppose Pythagorean difference is kinetic energy and then,
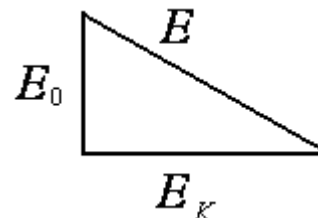

Fig. 2. Pythagorean conservation of energy.

V. PROVING DE BROGLIE WAVE EQUATION BY EQUIVALENCY OF MOMENTUM AND KINETIC ENERGY

According to the de Broglie wave equation [3] that,

$$p = \frac{h}{\lambda}$$

And this equation means that each mass is a wave too that its momentum p is proportional with its inverse wavelength.

But this equation is not yet proved suppose it is just considered because of its experimental verification by Clinton Joseph Davisson in USA [4] and by George paget Thomson in England.

To prove the de Broglie wave equation we should notice that if we consider that the static mass is not wave then generated wave in the moving particle should be certainly just sourced by the kinetic energy of moving mass because that each moving mass is just included to the static mass and moving mass and then when static mass is wave less, the wave is kinetic full.

In fact kinetic energy in a moving mass according to the equation (6) that,

$$E_K = E_{ph}$$

And using equation below that,

$$E_{ph} = m_{ph}c^2$$

It is that,

$$E_K = m_{ph}c^2$$

Now if we consider that moving mass is quantized by quantization of photonic energy, it is appeared a mass that it is photon like with difference in the maximum speed because of existence static mass means that electron is a photon like particle that its maximum speed is difference.
We should notice that being photon like means that electron like the light ever has a constant speed in a constant condition and in fact the speed of electron is ever maximum speed like the photon and this maximum speed is varied by the existence photonic energy in the moving electron.

In fact static mass is not wave and then it is continuum and when we add differentially static mass to photon it is manifest that frequency of photon is not changed by differentially addition of mass because that frequency of photon is a quantum number and quantum number if it is changed it is changed by a quantum value of static mass not continuum values.

Then variation in the photon by added mass is not a quantum variation suppose it should be varied just continuum values like the speed that it is not a quantum in the wave too. Then increasing gradually static mass to a photon does change never its quantum number and frequency is too a quantum number.

In fact this is general concept that continuum parameters variation doesn't change the quantum parameters and in the quantum mechanics quantum parameters are varied by quantum parameters and continuum parameters are varied by continuum parameter.

Here the static mass is continuum and to the same reason variation of static mass doesn't change the frequency and to the same reason when a photon plus to a static mass, the generated moving mass should be had the same frequency that added photon has it.
Added photon frequency is by plank equation that,

$$E_{photon} = h\nu$$

And because of the resulted fact that frequency of photon is not varied by static mass that it means that frequency of moving mass and added photon is equal that,

$$\nu_{mass} = \nu$$

Using this equation in the equation (4) below that,

$$mvc = h\nu$$

It results that,

$$p = h/\lambda$$

VI. EINSTEIN REVISED EQUATION

According to the fact that kinetic energy is photonic true energy and static mass too is a true mass, m is not true suppose it is a value to agree some other values in the equations like the momentum conservation and in fact when static mass and kinetic energy are true, generated parameter m by Pythagorean conservation below is not true,

$$m^2 = m_0^2 + m_{ph}^2$$

In fact we can write Pythagorean conservation of energy in the below face that,

$$(im)c^2 = m_0c^2 + (im)vc \qquad (12)$$

Because t is manifest mathematically that if we consider,

$$mc^2 = mvc - im_0c^2$$

Then it is considered in the complex calculus that,

$$\left(mc^2\right)^2 = \left(m_0c^2\right)^2 + \left(mvc\right)^2$$

On the other hand about the energy equation that,

$$E^2 = E_0^2 + E_k^2$$

It is again manifest that total energy E is not true because that static energy is true and kinetic energy is true too and then like the mass, E too is figurative and to the same reason we can replace E by its imaginary value and in fact because of equation (12) it is resulted that,

$$E = (im)c^2 = m_0c^2 + (im)vc$$

Einstein famous equation transfers to the below face that,

$$E = imc^2$$

And it is appeared that,

$$E = \sqrt{-1}(mc^2)$$

And this is true face of Einstein equation that it should be considered ever until true values realizable with figurative values in the system.

In the Schrödinger wave equation too the considered energy E is appeared as an imaginary sentence that,

$$E = \sqrt{-1}\hbar\frac{\partial}{\partial t}$$

VII. THE EQUATION OF RELATIVISTIC MASS

Consider a static mass and a photon added to the same static mass.

Adding complete of photon to this static mass changes speed from zero to a speed v.
Now consider a force that it is acting on the same static mass

to change its speed from zero to speed v.

If we consider that arriving to the v is sourced by adding photon, the force in the relativity is acting with addition of photon and in fact we can consider that light is force.

It is manifest that force should be parallel with direction of motion until force action and adding photon to be unified and it is interest that this fact is agreement with definition of energy that,

$$dE = \vec{f} \cdot d\vec{r}$$

Now because of the fact that displacement along the force is dr that,

$$dr = |d\vec{r}| \cos\theta$$

And angle is angle between force direction and direction of displacement of mass then it is manifest that,

$$dE = fdr$$

Then according to the equivalency of mass and energy that,

$$d(mc^2) = fdr \qquad (13)$$

And now because of equation that,

$$\vec{f} = \frac{d\vec{p}}{dt}$$

It is appeared that,

$$\vec{f} \cdot d\vec{r} = \frac{d\vec{p}}{dt} \cdot d\vec{r}$$

And because that vector differential of momentum vector is along the force vector, to the same reason it is appeared that,

$$fdr = \frac{dp}{dt}dr$$

$$fdr = vdp \qquad (14)$$

And according to the equation (13) and using it in this equation it is appeared that,

$$dmc^2 = vdp$$

$$vd(mv) = c^2 dm$$

$$dm(c^2 - v^2) = mvdv$$

$$\frac{dm}{m} = \frac{vdv}{c^2 - v^2}$$

$$\ln(m/m_0) = -\frac{1}{2}\ln|c^2 - v^2| + \frac{1}{2}\ln c^2$$

$$\ln(m/m_0) = \ln\left|\frac{c^2 - v^2}{c^2}\right|^{-\frac{1}{2}}$$

$$m = \frac{m_0}{\sqrt{1 - (v/c)^2}}$$

And then correctness of this equation is independent of direction of force and in each direction it is agreement and on the other hand it is manifest that work law is compatible by relativistic mass and then the law of work is relativistic too. In fact generated longitudinal mass and transverse mass is because of using non relativistic face of force that,

$$\vec{f} = m\frac{d\vec{v}}{dt}$$

And this fact is clear and using below equation in the Einstein paper manifestly shows the same fact,

$$dE = v[mdv] = v\frac{m_0}{\sqrt{(1 - (v/c)^2)^3}}dv$$

VIII. THE CONSERVATION LAW IS NOT CONSERVATION LAW SUPPOSE INVARIANCE MATHEMATICALLY

According to the below equation of energy that,

$$dE = \int \vec{f} \cdot d\vec{r}$$

Correctness of this equation is independence from correctness of the face that difference of energy is energy suppose correctness of the face that difference of energy is energy is depended to the principle of linear addition and then when we consider an evident sentence that,

$$\int \vec{f} \cdot d\vec{r} = \int \vec{f} \cdot d\vec{r}$$

Correctness of this equality is evident, not depended to the correctness of linear addition principle. Then each result generated by this evident equality is independent from principle of linear addition.

Vector calculus (14) shows that,

$$\int \frac{k}{r^2}dr = \int vdp$$

By this equation it is appeared that,

$$\frac{1}{2}mv^2 - \frac{k}{r} = \frac{1}{2}mv'^2 - \frac{k}{r'}$$

Then appearance of constancy of the sentence that,

$$\frac{1}{2}mv^2 - \frac{k}{r}$$

It is not depended to the principle of linear addition because it is result of an evident equality.

In fact this sentence is an invariant sentence in the calculus of equations whereas that it is not conservation of energy.

In the collision of bodies too the force after collision is the same before collision and then,

$$\int_{before}^{after} d\left(\sum_i (mv^2/2)\right) = 0$$

$$\sum_{before} mv^2/2 = \sum_{after} mv^2/2$$

IX. POTENTIAL ENERGY IS NOT ENERGY

About the potential energy too, because of work law that,

$$dE = \int_{r_1}^{r_2} \frac{k}{r^2}dr$$

It is manifest that,

$$E_2 - E_1 = E(r_2) - E(r_1) = -\frac{k}{r_2} + \frac{k}{r_1}$$

If we consider in a possible that,

$$r_2 = \infty \text{ and } r_1 = r \, , \frac{k}{r} = E_\infty - E(r)$$

$$\frac{k}{r} = m_\infty c^2 - m(v(r))c^2$$

And then,

$$E_p = E - E_\infty$$

And because of the fact that linear difference of these energies is not energy, then considered potential energy is not energy too.

ACKNOWLEDGMENT

This paper is regular paper and to be continued with several papers along the same and too please waiting for a book named absolutely relativity that this paper is just several pages from this book.

I announce here appearance of a new physics named absolute physics that,
It is unification of differences.

Out of theory and simulation suppose the same that is the same.

In fact if absolute physics is a theory it is theory of light and if physics is theory of everything, the light is everything. Absolute physics is arrived to the end fact that the light is a twenty dimensional thing that twentieth dimension is not an independent dimension suppose it is included to the other dimensions and unifier of these eleven dimensions and this final dimension is not anything else time.

Then equation of time is equation of everything and to the same reason the equation of minimum time results true equations in the physics and in fact best action is least action and least action is minimum time.

Absolute physics is least number of laws that foundation of motion in the nature needs it whereas that set of all laws in the nature is infinity because that set of laws is the will of god and when the god wants it is appeared a law.

Least laws to create motion set logical physics as a core and the sum of laws with the same core is wisdom physics.

I have discovered it many years ago but I hide it to complete and to the same reason I don't publish any paper in these years and this is first paper that it is just several pages from a book with name absolute relativity.

Absolute physics is too large and to the same reason I should publish gradually one by one the papers and the books.

REFERENCES

[1] R. Shanker, *Amazon.com principles of qunatum mechnaics*.
[2] Paul C. V. Davission, Davidas, Betes, *Quantum mechanics*
[3] R. Eisberg and R. Resnick, "chapter 3 – de Broglie's postulate-wavelike properties of particles" quantum physics of atoms, molecules, solids, Nuclei, and Particles 2nd ed., John wiely and sons.
[4] C. J. Davisson and G. P. Thomson, *The noble foundation, Clinton Joseph Davisson and George Paget Thomson for their experimental discovery of the diffraction of electrons by crystals*, 1937.

M. Lutephy Researcher and Engineer. From earth in the Iran and I am designing personally a new physics named absolute physics and true or false it should be reviewed by aware persons.