Journal of Energy and Power Engineering 10 (2016) 116-120
doi: 10.17265/1934-8975/2016.02.006

A New Energy Concept

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Received: September 21, 2015 / Accepted: October 10, 2015 / Published: February 29, 2016.

Abstract: According to the uncertainties in the results and the wide diversity of how to approach the subject, a new concept for energy is proposed: Energy is an exchange between two different concentrations, the concentration of time in space outside what we call matter and the concentrated phase of time in matter space which is the matter itself. The concept of motion for energy is replaced by time-space interactions with time taken as solid matter. Motion enhances the exchange between the mass and its surrounding time in space, annihilation and creation are special forms of this exchange. During the motion of a mass, it increases as a result of this dissolution. Time concentration in Fock space is responsible for the collision phenomena in physics. In this paper, a new mathematical operator (the equal operator) is introduced.

Key words: Time, mass, space.

Nomenclature

E	Energy
p	Momentum
M	Mass
x	Position
V	Potential energy field
$\widehat{H}$	Hamiltonian
Ψ	Probability function
$\hbar$	Physical constant = 1.0546×10^{-34} (J·s)
$\widehat{M}$	Mass operator
q_i	General coordinate system
t	Time
c	Speed of light = 2.99792458×10^{8} m/s
A, B	Any mathematical operators

1. Introduction

Energy was known to be introduced to science by Galileo Galileo (1564-1642). In 1760, Joseph Blank laid the foundation of quantitative heat transfer and demonstrated the concepts of latent heat of fusion and evaporation. In 1798, Count Rumford ended the "caloric theory" which prevailed for 50 years with a new concept of heat as motion. In the 1840s, Joule and Mayer set forth the idea that heat transfer and mechanical work were simply different forms of the same quantity. In 1848, Kelvin suggested an absolute temperature scale and used the terms "thermodynamic" and "mechanical energy". In 1850, Clausius constructed the first law of thermodynamics and he used the term "entropy" for the first time. In 1859, Rankin wrote the first thermodynamics textbook. In (1803-1889), Ericson invented the shell-and-tube heat exchanger. Gibbs (1839-1903) received the first engineering doctoral degree in the United States, in 1878, he first introduced the phase rule, the basis for the field of physical chemistry.

All the efforts were a pack of hunting hounds questing after an elusive quarry [1].

2. Methodology

We humans have faced a multitude of obstacles in our search for truths of science especially about energy. This work assumes that, the problems are not in nature itself, instead it is in our adopted philosophies. A new philosophy is proposed to evaluate our knowledge and observations. Common sense is employed here to extract solid knowledge about time, matter and space, and its interrelations. There is a universal law correlating all physical and non-physical phenomena which is:

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Ethics (Control) = Justice (1)

When this law is interrupted, the natural probabilities rearrange to compensate for the alteration.

3. Discussion

Time barrier equals mass barrier plus space barrier. Energy correlates these three concepts, where the equal sign is a mathematical operator operating on both sides of the equation. Suppose there is a person in a closed room and there is a closed door in it, the solid mass of the walls represent a "forever" time barrier to exit the room, when the door is open, the door space represent a dynamic time barrier. So, solid matter represents waiting or using other word time.

Energy as we know is a concern of whatever in motion. Heat is motion. We think we know contact forces and zero sum work fields. Our none settable dispute is over forces through distances or space. Both statements of the second law state that, the reverse of Carnot cycle cannot occur naturally, which means that, any cyclic operation based on Carnot cycle which has a forward chronological order cannot have a backward natural process.

The general equation for energy [2]:

$$E = \frac{p^2}{2m} + V(x) \tag{2}$$

Time-dependent Schrödinger equation (general) [3]:

$$i\hbar \frac{\partial}{\partial t} \Psi = \hat{H} \Psi \tag{3}$$

As this is a complex equation, the projection of it on the real axes is the way to reach physical phenomena's calculations. Because of this equation, we cannot think of energy as an identity separated from matter. According to the uncertainties in the results (probabilities) and the wide diversity of how to approach the subject a new concept is proposed: Energy is an exchange between two different concentrations, the concentration of time in space outside what we call matter and the concentrated phase of time in matter space which is the matter itself. The concept of motion for energy is replaced by time-space interactions. Motion enhances the exchange between the mass and its surrounding time in space, annihilation and creation are special forms of this exchange. During the motion of a mass, it increases as a result of this dissolution. Time concentration in Fock [4] space is responsible for the collision phenomena in physics.

Mathematical operators are instructions that, a mathematical operation is to be performed, momentum and energy are examples of mathematical operators. The Hamiltonian operator in Schrödinger equation represents the total energy of the system, in differential form, energy does not change unless the probability function of the distribution of mass has changed with time. The quantity called mass enters the equations through its coefficients and not the function which the operators' instructions perform their operations on. Time with this respect must be distinguished from chronological order axes, anything could happen to the earlier but the latter is an invariant sequence property. The main current of time surrounding us is composed of relative time spans between solid concentrations of time, what we call matter is composed of a unique certain spans of time each characterized by its own period. The electron is a string of concentrated time surrounding the nucleus, each slice with a different span. Energy is a change of time spans within space irrespective of what has caused them. Mass concentration vanishes when the span of the concentrated phase (matter) intersects with the span of the time within the surrounding space, it means that, matter is actually distributed to infinity space and a chain of time joins all objects. As the moving objects retain their mass when decreasing their velocity, then the equilibrium exchange of time during motion is reversible and because this phenomenon occurs at different places this means that, time is homogeneous and memorizes the mechanics of objects within it.

Beginning with [5]: $m = m_0/\sqrt{1 - v^2/c^2}$.

The mass quantum mechanical operator could be derived using the method described in Ref. [6], to give

the relation for mass operator in relativistic mechanics:

$$\widehat{M}=\frac{1}{m-m_0}\left(\frac{\hbar}{c}\right)^2\left(\frac{\partial}{\partial q_i}\right)^2 \quad (4)$$

Where the creation is given by: $m-m_0$.

The kinetic energy operator is given in terms of the annihilation by:

$$\widehat{K}=\frac{c^2}{2}\left(m_0-m\right)=\frac{\hbar^2}{2m}\left(\frac{\partial}{\partial q_i}\right)^2 \quad (5)$$

Those are nonlinear operators. When two quantities are related through the uncertainty principle then upon this thesis, there could be an exchange between them.

Mass during motion is a dynamical value and as such an operator is required to find its value. There is a definite relation between annihilation and creation operators, one is the adjoint of the other. As we are concerned with real mass axis, this means that, with respect to mass operator, annihilation is the transpose of creation. With this respect, mass operator is a Hermitian operator. So, mass in this view is an observable. When changing the phase of time between solid and overall relative surrounding time current, the related identity disintegrates. It could be concluded from the value of mass as a function of velocity which is given by relativity that, the mass operator is not explicit and the quantity which the mass operator works on is related to the charge, also the velocity is involved.

The exchanged pairs of quantities in physics are related through the uncertainty principle:

$$\langle A^2\rangle_\Psi\langle B^2\rangle_\Psi \geq \frac{1}{4}|\langle[A,B]\rangle_\Psi|^2 \quad (6)$$

Where:

$$[A,B]=AB-BA \quad (7)$$

Time is the progress of the tow electrons spinning. Each moment they make a step change forward in time. As such different bonding and different electric conductivities represent different times. Energy has yet four distinctive useful representations: internal energy, non-flow availability or Gibbs energy, enthalpy, and flow availability or Helmholtz energy. With the help of mere observations, energy as we know could be born within three kinds of fields: electrical, magnetic and gravitational. It is known that, time stretches within the last field.

The approaches for thermodynamics differ about the point of view out of which one is looking to his system. The molecular-microscopic level is different from the macro-system level. Until now, there is but one way of getting information, beginning with experiments and ending with unknowns. Thermodynamics in its essence is an applied mathematical science, and it retains the qualities of mathematical science illusionary nature. It has a few empirical none proved laws which are totally dependent on observations and experimentation, the rest are mathematics of equations and formulas.

Obtaining energy from our surroundings depends on finding or artificially making a non-equilibrium state which takes a path back to equilibrium of losing energy. The three signs of energy wealth in a system are: motion, temperature difference and/or radiation.

Now there are three steps taken by energy to reach us, energy content (internal or enthalpy), availability (flow or non-flow), efficiency of our invented engines, and practicality (our materials and processes limitations). Until now we have not passed the engine point, our first obstacle, and we want to reach the end of the tunnel without passing every break of it.

If we imagine that, the way is something we know or can know without being well behaved then we are totally wrong. Our driving force for more knowledge being making wars is totally un-ethical. This ethicality is transformed out of us to meet our first rejecter, energy. Clean energy is anything which gives without taking, as we have never done that, the surroundings are rude enough to treat us diplomatically. The system should be unstable with respect to our dead state in order to extract energy out of it, dams, wend mills, burners, turbines, nuclear reactors, solar energy collectors and engines are all unclean if we found sometime that it requires us to compromise our living for theirs'.

Now when civilized nations are abandoning nuclear

energy, some in the Arab world are taking it as a strategic choice, extracting uranium from the environment and de-stabilizing it. They are just selling their home ceilings for more money, the only driving force for any mechanical human being.

As there is an expansion movement within a flow streamline inside the universe, and this expansion is symmetrical then the boundary of our universe is a free surface. "What is out there?". Thinking of metaphysical existence is totally not scientific. The existence of time and space without matter is a requirement for discontinuity or the existence of a boundary, this means that, outside the boundary of the universe there is no time, time is the basic constituent of matter. The need of existence of counterwork at the boundary is a requirement for the limited expansion of the universe, if it is not present, the universe will have a solid boundary or infinite one with no expansion. Outside our universe is a potential field building a growing force against our expansion. Energy inside the universe is motion and there is a significant reasoning to conclude that in time-space, energy is time-space interactions, energy is produced by the mere passing of time and changing place. Our universe does not recognize inside it a "Dead state". Surely Mr. (Man) has extracted heat and transformed it totally into work using his engine. The car work produced from the combustion of fuel does not simply disappear after we drive to our destination, it completes the cycle of entropy. Exergy is our most miss understood concept, it means producing heat.

The concept (availability) is the second step that completes the conversion of the extracted heat into work. The whole process is creating energy, we call "dark". The condensation front of the wave of this created energy at the frontiers of the universe is accelerating our expansion. The universe is getting old very rapidly and we are living an extended periods but without perceiving them.

On the scientific conceptual level, there are fundamental errors in understanding processes. For example, regulating insulin in the blood and dopamine in the brain is a total fundamental mistake. The reason is that, these chemicals are prevented to enter the human body system at any condition. If regulating them is an option for our health, then there should be no barriers for their entrance from the environment. Depending totally on biochemistry and forcing their regulation is putting things in their wrong place and abuse of using our tools.

4. Results

As annihilation is the transpose of creation then the quantum state is conserved between these two processes.

(1) The current energy resources which depend on combustion or heating to extract energy are not the ultimate choice for moving things.

(2) A new cycle with time as working fluid is proposed. The source of motion for this kind of process is already out and waiting to be utilized.

(3) Is the new process possible or not. Instead of asking what is the entropy change for this process? The question is: is it ethical for the existence of this process or not? If it is ethical and not possible, then the natural probabilities will rearrange for this process to be possible upon Eq. (1), which is a balance equation governing all universes. If it is not ethical and yet, we still had it then we are already having our own penalty.

(4) The proposed time cycle is similar to the engine used today but without the trick of the battery when initializing motion. The new cycle has a size, material, components, mechanism and environmental impact.

(5) Using Eq. (5) and taking ($m - m_0$) as time working fluid, and:

$$\int 0 \, \mathrm{d}x = 1$$

the result is:

$$\frac{1}{2} mv^2 = \frac{\hbar^2}{2m} \left(\frac{\partial}{\partial q_i} \right)^2$$

This gives:

$$v = \frac{\partial q_i}{\partial t} = \frac{\hbar}{m}\left(\frac{\partial}{\partial q_i}\right)$$

then

$$\partial q_i = \frac{\hbar}{m}\left(\frac{\partial}{\partial q_i}\right)\partial t$$

The function which is operated on:

$$1 = \frac{q_i^2}{2\hbar}\frac{m}{t}$$

this gives:

$$(mv)q_i = 2\hbar$$

where, m is the remaining mass after annihilation or creation processes.

Finally:

$$\vec{p} \cdot \vec{q}_i = 2\hbar \quad (8)$$

If Plank constant, speed of light or Pi change within the same universe or through multiverse then the dot product in Eq. (8) becomes cross product i.e.:

$$\vec{p} \times \vec{q}_i = 2\hbar \quad (9)$$

This states the exchange between two variables combined with uncertainty principle: position and momentum.

(6) The mechanism for the proposed engine is simple: an enclosure empty of time or no-processes enclosure, this enclosure is surrounded by a material that can withstand the annihilation process. Annihilation-creation process happens at a frequency that makes the motion possible. Remembering the conservation of quantum state, in effect nothing change and the environmental impact is zero and it is isothermal.

(7) The future work includes finding out if living organisms have the kind of engine proposed in this theses. Proving that, there is not such an engine in them is as much important as there is a one.

5. Conclusions

Our problems began when someone said: "We see a thing because it reflects light" [7], this was the first perception solved paradox. The phase of civilization which solved this paradox was changed, and another phase completed the train of reasoning but with different values (ways of interacting with the surroundings). The train of reasoning used for discovering the laws of nature was different from that used to initiate their knowledge. The west apparently has lost its last logical reasoning foundation (argument form logic-based) [8] with accepting string theory, so a unified logical reasoning approach was adopted in this work to overcome what has been abandoned.

One argument might rise: Why our matter (as it is some kind of time) not dissolves in the huge current of time surrounding it or in the timeless existence outside the boundaries of the universe, we will vanish and disappear. This paradox might deem the proposal of this thesis not logical. On the contrary, this paradox exists and we should live with rather than solving it. The only solution is the presence of outside will that keeps our existence on. The more powerful we are the less controlling we will be.

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