Does kinetic energy of photons varies?

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Abstract

In this paper I am trying to say that, the laws of universe are same in everywhere and every action. We can explain everything in the same mode. According to me there is no any specialty in black body radiation or photoelectric effect. We can explain them naturally like every action occurring in our surroundings. Nature is giving us the answers if we observe it clearly. We can observe everything as simple even big bang, inflation or any action happening in our surroundings as the same. Everything in the nature is working under the same laws. I am trying to say we can observe inflation in every action where a force is applying. Here I am trying to understand about the force and energy. If we can understand very well, what is happening, when a force is applying to an object? It will give us the answer for everything. For me kinetic energy or potential energy of the object will not change the equilibrium of the system, so it is not mingling with the stored energy in it. I am not adding any new ideas here; I am just explaining what we know. A single photon doesn't have a rest mass but it can show gravity and it can add a mass to a system. I am trying to state that, gravity is closely related to the frequency of a particle than its mass. For me to explain the quantum gravity we have to bring the planks relation into macroscopic level. If bring it into the macroscopic level we can find the relationship between mass and frequency in macroscopic level.

Introduction [1 – 21]

Here I am trying to know more about Energy. I think that my observations will give us a clearer image about energy. I am not trying to admit a new concept in current physics; I am trying to make a better explanation for our present concepts about energy with my observations in our surroundings. We are having the very best equations for Energy ($E=mc^2$ *and* $E= hv$). Einstein explained us the relation between mass and Energy. And the Planks relation $E=hv$ relates energy with the frequency. To say something about my thoughts on the subject Energy, I would like to go back to the period of Plank and Einstein and find a relation between these two theories. Plank explained us about the Black body radiation and Einstein explained us photoelectric effect.

I was curious about these two phenomenons and I was intended to think about blackbody radiation and photoelectric effect [3–16] to reach some conclusions. Blackbody radiation describes

about the *amount of energy required* to form an electromagnetic field (a quantum). Here we can say a photon as a unit particle. So here we can see that the amount of energy required forming a unit particle or a photon and its frequency. Once we go through the photoelectric effect we can see that a photon can eject an electron from an atom, *if it has the sufficient frequency.* So it is clear that *frequency of a photon varies*. That means *frequency of particles can vary according to the amount of energy stored in it*. So here we can say that the minimum amount of energy required (*work function*) to a photon to eject an electron from an atom. The intensity of the photons has no role in this situation. Here we can say that, if a photon doesn't have sufficient energy to eject an electron from an atom, it will radiate from the atom at the same time. So *the amount of energy stored in a particle is directly related to the frequency*. These observations made me think about the particles and the amount of energy stored in it.

In blackbody radiation we can see that the amount of energy required to creating an electromagnetic field and in photoelectric effect we can see that the amount of energy required to a photon to eject an electron from an atom. Now we can imagine if the amount of energy is less than this level what will happens. Normally we can say that its frequency will be less. In a blackbody it can't create an electromagnetic field and in photoelectric effect it can't eject an electron from an atom. So it is just acting on the object and cannot cause anything seriously. At this stage I am intended to think that if *a particle with the amount of stored energy much lesser than that of a photon (may be half or something less than a photon).*what will happen if it is like that? Normally we can say that the frequency will be that much lesser. So at this time those *particles with lesser energy in it cannot act against anything. It can be act like a transparent object and it can show only gravity according to its frequency.* I am trying to explain about this below.

According to me if one or more photons are accommodating in a system, it can add some mass to the total system. Like this way these low energy particles can add mass on a system according to the number of the particles in the system. Here I am intended to say that *dark matter may be existing as particles like this* (that's why it can contribute mass and gravity to the total energy of the universe). Here we can use the equation $E=hv$ and calculate the energy of the particle. I just have started my new project about quantum gravity with these thoughts and hope to get a good result soon.

Now we will think about photons and we know that photon doesn't show any rest mass even it travels with the speed of light. In light, we can observe photons with different frequencies at same kinetic Energy (velocity). This made me think about kinetic energy. We all knows that Kinetic Energy $KE = ½\ mv^2$, and we can see the presence of *mass and velocity of the object*. So kinetic energy is the energy (force) which effect on another object (energy). An external force is acting on an object, when it was at inertia or in motion. This equation doesn't state anything about the mass of the kinetic energy. We also know that if the velocity increase it will increase the mass also because $E= mc^2$. Now we will see what is happening when an object get a motion by an external force (energy). The energy will increase into *E+Ke*.

So $mc^2+ ½\ mv^2$ = total energy of the moving object. Here mc^2 is the energy when the object was at rest and $½\ mv^2$ as the kinetic energy. Here to calculate kinetic energy we

are using the mass and velocity of the object, and naturally we say that kinetic energy can add a mass to the object. We are *unable to know about the mass of the force* (energy) which was applied on the object to get its kinetic energy. Here I am intended to say that, *Kinetic energy or potential energy will never add a mass to the object (don't confuse with rest mass and weight). If kinetic or potential energy adds a mass to the object, a photon which moves at a velocity of light must obtain mass and if it has a mass it can't reach at this velocity (velocity of light)*. So what is happening or what is kinetic energy? Peoples say a flying photon has mass. In any condition a photon add a mass to it; it will reduce its velocity. *If kinetic energy adds a mass on photon, it needs an additional energy to keep the velocity as the same*.

Does kinetic energy of photons varies? [2 – 21]

I am always trying to understand something from my surroundings, when I was thinking about kinetic energy of a moving object and the additional mass to the object by the kinetic energy made me think about *momentum*. We knows the equation of momentum *P= mv*. Here also we are using the mass and velocity of the object to calculate the momentum. We also knows that, *if velocity or mass increase, it will increase the momentum too.*

Imagine an object with mass 5kg and velocity 8m/s. We can calculate the momentum of the object as 40 Ns and Kinetic energy as 160 N. Now we can increase the velocity of the object as 10m/s again we can measure the momentum as 50 Ns and kinetic energy as 250 N. Now I am increasing the mass of the object as 10 kg and keep the velocity as 8 m/s. and I calculate the momentum as 80 Ns and kinetic energy as 320 N. By this example I would like to explain the kinetic energy of a photon.

So if I increase the mass or velocity it will increase the momentum and kinetic energy. Now we will see what is happening here. An object at a mass and a velocity have its momentum. To change the velocity of the object, I have to increase or decrease the applied force (kinetic energy). If I change the mass and need to keep the same velocity, I have to change the applied force. If I increase the mass and the applied force (kinetic energy) keep as the same as before, the object will have a less velocity than previous and the momentum remains same. So momentum is property of the external force which is acting on the object or momentum will be decided by the applied force. So we know that an applied force (Kinetic Energy) is adding momentum to the object. Here I wish to say, *kinetic energy or momentum will not affect the equilibrium of the system and so it will never make any change (except motion) on a physical body [3, 16]*. We can see that if we increase mass of the object and keep the kinetic energy as the same, it will decrease the velocity only. So here I would like to say that, *the velocity of the moving object is depending with the rest mass of the object and kinetic energy.* Kinetic energy is a form of energy which is only accompanying the object and easily removable.

These observations revealed me that *energy is affecting to an object in two different ways, permanently and temporary (Force)*. What I mean by a *permanent energy is the energy*

which an object (electron in photo electric effect) can absorb in it and the temporary energy (force) is the form of energy like kinetic energy or potential energy, which is only adding to the object or a system. Here I will show an example and I think it will give us a clear idea about kinetic energy. I just want to stick two wood pieces with a nail. So I hit the nail with a hammer and the nail will penetrate into the woods. Here I am applying a force on the nail; the work is done by me because I give a kinetic energy to the hammer. We are sure that, the work is done and we get the result. Kinetic energy will not rest with the nail after it penetrate into the wood, it is liberating from the nail. Here I already release a force and it is transferred to the nail and I get the result. So the applied force must have to conserve in the nail and its mass have to increase, but it is not happening here. So kinetic energy is adding to the nail temporarily and after that it is releasing from the object. To explain this we can think according to the photoelectric effect or black body radiation.

While explaining photoelectric effect [11], Albert Einstein agreed that the *energy of a photon is related to its frequency*. Here I am taking photoelectric effect as an example to explain my ideas. In photoelectric effect a photon can eject an electron from an object. It depends on the frequency of the photon and even if we increase the intensity of photons, it will not eject electron from an atom if it has no sufficient frequency. If we go through this concept slowly, we can observe some interesting things about energy. As I told above, *frequency of the photon is directly related to the amount of stored energy in it. A single photon doesn't show any mass but it can contribute a mass to other objects if it is absorbed in it.* During photo electric effect, when an electron is absorbing a photon, the absorbed photon will add a mass to the electron. We know that photons are moving at the speed of light and have no rest mass. Here we can say that a photon or a moving object have two different energies (stored energy in it and the kinetic energy). This show if a photon has sufficient energy (amount of stored energy in it and kinetic energy), it will absorbed by the electron and ready to move away. *The kinetic energy of the photon will add to the electrons kinetic energy and allow the electron to eject from the atom*. Here we can see two different actions *1. Energy is acting on energy, 2. Force acting on force [2,3,11].*

Energy acting on energy; the *electron is absorbing the amount of stored energy in the photon*. Force acting on force; *kinetic energy of photon is adding to the kinetic energy of electron*. *Kinetic energy of the photon we can call as the work function.* Now I will show an example to clear this point. Imagine an object is moving with a constant velocity, and after a time I am applying a force on it. We can see that the object will accelerate suddenly according to the applied force. It will increase its kinetic energy with the applied force. And we can see that the applied force is acting with the kinetic energy of the object and it is not absorbing by the object. Here we can clearly observe that the force is acting on the force and the increasing kinetic energy according to the applied force.

It is the time to think about the kinetic energy of a photon. As I said in an example above, *velocity of the moving object is related with the rest mass of the object and its kinetic energy*. If we consider a photon, it has no rest mass. We have no doubts that a photon has its own energy in it. So we have to work with the amount of stored energy in it, because mass is

also a form of energy. As I said before that "*Energy of a photon is directly related to its frequency*" [2- 20] and we know the energy of a photon $E = hv$. We have no doubts that *the amount of stored energy in photons varies*. Now we can imagine two photons (X and Y) at rest and the amount of stored energy in these two are different. We can say the energy in X is greater than Y. Now we can apply a same amount of force (Kinetic energy) on these two photons. The velocity of these two photons must be different at this time. Here kinetic energy (external force because the photons where at rest) is acting on an object (photon). We know that velocity of a photon $V = v\lambda$. Here velocity (kinetic energy) of a photon is the velocity of light "*c*" is a constant. So this equation also showing us the kinetic energy (the applied force to achieve the velocity) of each photons varies. To keep the constant velocity (if it is related to the frequency which varies on each photons), the kinetic energy must be vary. Here photon is the object and it has no rest mass, so *the existence of photon depends upon the amount of energy stored in it at rest*. We know that photons have the velocity of light. So if it needs to keep a same velocity, it must have different kinetic energy in each photon. And we can say *kinetic energy of each photon varies according to the amount of energy stored in it (frequency)*.

Now we will come back to photo electric effect. Once kinetic energy is adding to the electron, it is acting as the same way (it is only adding with the kinetic energy of electron). Naturally we can have a doubt that, a photon has the velocity of light and the ejected electron doesn't, even the kinetic energy is same? Here the electron will gain momentum and *electron will not get the same velocity as the photon because of the mass difference between photon an electron*. Ie; an electron has a rest mass greater than photon (photon don't have a rest mass). So now here we have to think only with the kinetic energy of the photon which is adding to the electrons kinetic energy.

These two process (Absorption of energy of photon and addition of kinetic energy of photon to the kinetic energy of electron) must have happen in the plank time and the effect of the absorption of energy of photon into the electron will be in the inflationary period (to clarify this, I will explain inflation below), because the *laws of universe is always same to every actions*. Photo electric effect or black body radiation is not showing any specialty to me. These are just an action like other things in the universe. To understand this, we will take some water in a jar and apply a temperature on it. We know the water will boil at 100^{o} c, if we apply a temperature of 90^{o}c on the water, it will never boil. If the temperature is not sufficient to boil the water it can't do the work what I expect from it. So *laws of universe are always same for everything in the universe, even we can apply it with the big bang cosmology (we can explain also Big bang in the same way)*. I have been taken plank time here for the absorption of energy of photon and addition of kinetic energy of photon to the kinetic energy of electron, because it (*the shortness of time to show the effects when a force is applied on an object*) is well described in big bang cosmology (*an applied force was created the big bang*) and I says the laws of universe is same for all motions in the universe. We can observe it in every action (even simple or complicated) occurring in our nature.

The second important point of photoelectric effect shows that the energy of emitted electron is not related with the intensity of photons (we can see it directly in the water

boiling experiment). Intensity of photon; while photons are hitting continuously to the electron, intensity is the number of photons hitting at the same time. Intensity of photons is not important in photoelectric effect, but according to my observations I can say that, it is directly supporting photo electric effect. According to me its surroundings has an important role on every physical action. *If there are no sufficient conditions nothing will happen. Surroundings are creating the sufficient conditions.* Now we will go back to the water boiling experiment and if I explain it in the language of photo electric effect, it will be like this way. When we are increasing the temperature the intensity of the applied energy remain as the same and we are increasing only the frequency of the heat energy. It will make the water boil. Now we will come back to photo electric effect, if things are normal an electron can absorb some amount of energy and add some kinetic energy from a photon and rest will absorb, add from another photon, and easily get ejected from the atom. It is not happening here, so time is having an important role on the absorption of energy, as I explained above with the big bang cosmology. If it doesn't absorb the sufficient energy and add the kinetic energy in a time limit, it will radiate the absorbed energy within not time. So the absorption must be happen in the plank time and the reaction on the inflationary period (example big bang cosmology).

Now we will try to know something about inflation. All we know inflation as a cosmological hypothesis regarding the big bang and the expansion of universe. According to me inflation is a phenomenon occurring, when a force acting on an object. We can observe or feel inflation on all kind of motions and the rate of inflation depends upon the amount of applied force.

Inflation [1 – 21]

When I was thinking about expansion and acceleration of universe on the basis of my paper "*Structure of relatively accelerating universe*" [1], in the inflationary epoch [21], I realize that inflation has an important role in the expansion of universe and *even in the every actions of our daily life*. In Wikipedia the explanation of inflation is like this "*Inflationary theory describes that the expansion of universe in the initial stage at an accelerating rate much faster than the speed of light. The inflationary epoch lasted from* 10^{-36} *seconds after the big bang*". Inflationary model is able to solve many of the problems in cosmology. Recently scientists argued about the detection of inflationary gravitational waves. We all know that inflation is happened after the big bang and the reason is unknown. According to me *pure Physics is the real understanding of the nature of universe*. Our surrounding nature is giving us all the answers of its phenomenon's; we just need to observe it carefully. Inflation made me think a lot about Big Bang, the force created by Big Bang and the after effects of Big Bang. My thoughts lead me to the force in daily life and I started thinking seriously about it. I realize that *we can observe inflation in every action where a force is applying*. In my logics "*inflation is the effect which is creating by a force when it is acting on an object or another force"*. For example, I supposed to throw a ball (we can ignore gravity for a better explanation) at a velocity of 10 m/s and it will continue its motion at the same velocity. It is clear here that, before I throw the ball, it was at the stage of inertia. *Its initial velocity was Zero. It*

will reach at the velocity of 10 m/s suddenly, when I apply the force on it. We can observe inflation here, *the time taken to reach the actual velocity with an unobservable acceleration*. The force which I applied was able to provide the object a velocity of 10 m/s. it starts from Zero and reach at the velocity of the applied force (kinetic energy) suddenly. This period will cause a sudden acceleration to the object. This we can say as the inflationary period of that force. *In this period the object will get acceleration at a very high rate according to the applied force*.

Now we will see another example to explain the inflation. Here we can observe a billiards board. We can say that Inflation is the effect creating by a force when it acts on an object. If we observe clearly we can feel it naturally in every action. We cannot observe it directly because of the shortness of time on the inflationary period of that action. It is just like the reflex action in biology, when we touch on a hot object, we will bring back our hand suddenly and then only we feel the hot. Please don't misunderstand me; I just intended show the speed of inflation on every action. For example if we observe a Billiards board or any other action. When the ball hits on a ball (here I am ignoring all the other balls on the board for a better view), the kinetic energy is transferring one to another. So the second ball is adding a momentum in it. The influence of the external energy (by the first ball) will fill all the parts of the ball uniformly and suddenly. And the speed of this uniform filling of the force will depend upon the strength of the force. If the applied force is week it will effect on the body slowly. *Inflation is the effect which created by the transformation of momentum to one force to another or an object*. So here we can see that the force is effecting uniformly on the body, it is accelerating the body with uniform motion and deciding the direction of motion. When the ball hits on the other ball, we can observe some kind of vibration on the ball and it will make a sound too (this we can say as the after effect of the applied force). It (the vibration and sound) will travel uniformly in all directions (*we can apply the concept of cosmic microwave background radiation here*).

By these observations, I would like to mingle these concepts in the cosmic inflation. Once the big bang apply a force to the unique quantum universe (before the big bang), the force is applied uniformly to the total part of the unique mass, it gains a unique momentum and the after effect of the applied force (*cosmic microwave background radiation*) spread in all directions uniformly. This is the reason which the universe is seem to be uniform in all direction, cosmic microwave is distributed uniformly in all direction and all other uniformity shown in the universe. It shows us that the *universe was a unique quantum before big bang, otherwise it can't show uniformity*. To understand we will go back to the billiard board and this time we can imagine the board with several balls. Once the ball hits a ball, it will pass a momentum to the other balls too, but not uniformly. Each ball has *different momentum and different direction according to the effect of force on it*. Here we can understand the uniformity of universe and its reason. In each case time has an important role. So I would like to write something about time here.

Quantization of Time [1, 5, 6, 12, 13, 14]

According to me time is an important thing in the universe and our daily life. Here I am trying to point out my observations about time and I am not trying to say anything about space time and

space time curvature. Here I am writing my observations about time only. According to me *time is always with the force (energy) [1]*. Everything in the universe is under time even if it is in inertia (because the universe is expanding uniformly). According to me *time in the present universe starts with the big bang*, one may can say there was a time exist before the big bang too. But here I consider saying time starts with big bang and I am taking that as the original time. Because of the expansion of universe starts with the big bang. *Once time is always travelling with the force, time is with the expansion of universe*. Each and every point in the universe we can find a time according to the big bang and by the distance it will increase or decrease. I would like to explain with an example. Imagine two objects have the same time and they start travelling with this time from a point with same velocity. During their motion they arrive at a point after an interval of time. We can say the time starts when they get accelerated and the increasing distance is increasing time too. So during the expansion of universe the time is also expanding. Now we will go back to the example. When they arrive at the fixed point one of these two objects get influenced by an external force and deviate its direction of motion. The first object will not affect by the external force and it continues its motion with the original time. The second object which affected by the external force deviate its direction of motion and *starts a new time with the external force and keeping its original time for the information of its total motion*. Here the *original time is being quantized with new time*. So here we reach to the point which we have to discuss about *"the quantization of time"*.

Quantization of time; *Time required to gain the energy is equal to the time required to emit the gained energy*. Consider an object moving against gravity at a constant speed (we can ignore the effect of gravity on the body during this motion) and after a time interval it reach at a height and stop suddenly its motion. Here I am ignoring the accelerations on the motion for a better understanding. Imagine that the external force is keeping that object at a constant velocity greater than 9.8 m/s, so it will never decelerate or accelerate during its motion. Once it stops its motion, naturally gravity will hang it back to earth. Now we can say that, Earth will give a velocity 9.8 m/s (naturally it is accelerating but for clarity, I would like to say it as a constant velocity) to the object. So this object will take more time to reach to the surface of earth. Because the velocity (applied force) which given by gravity to the object is less than that of its first motion. So the applied force (kinetic energy) in these two motions is different. So the times taken to reach a same distance in these two motions are depending on the applied force (kinetic energy). By this experiment I would like to say that the time is quantized with the force (energy). In this experiment we can see that the difference between these times is quantized with the difference between the applied forces. I can show the same thing with other examples but I have taken gravity as an example, because still we have to understand more about gravity. Now we will go back to the example, we can imagine the motion of object against gravity and the velocity providing by gravity are equal. So the time taken to reach a distance (gain potential energy) and the time taken to return the same point (lose potential energy) are equal. By these examples we can clearly say that the time is quantized with the energy. We can say a clear explanation with the water boiling experiment. The time require to make the water boil at room temperature is equal to the time required to cool the water as before in the room temperature.

Here I would like to add another observation about time with the help of an example. Here we can imagine three objects "*with same time*" and travelling with different velocities at a same line. These three have to reach a same point at a same time interval, but they are travelling with different velocities. So they will never reach at the destination at same time. The original time is moving with them equally, but the time according their motion varies. We can say if it reaches at the destination with an allowed time for the motion, it is travelling with the original time. The rate of flow of time and rate velocity is equal. We can call them as A, B and C. Object B is travelling at the allowed velocity to reach the destination, A is having a velocity greater than B and C with a less velocity regarding to B. According to B, the object A is travelling into the future and C is in the past. So *if we can obtain a velocity greater than that of the expansion rate of universe, we can travel to a point where earth will reach in future*.

Gravity [1 – 20]

Gravity is the most familiar and most unknown subject in physics. Our present concept about gravity is related with the mass of the object [16]. All of us know that Quantum gravity is still remaining as a question in physics. There are so many proposals for quantum gravity in physics. Here I am proposing my thoughts about quantum gravity. I am trying to explain quantum gravity according to my point of view. *According to me, to explain quantum gravity we just need to change the measurements only. To bring an idea about quantum gravity we have to bring quantum mechanics in macroscopic level. That means the equation E = hv must be able to describe the energy of matter or an object*. That I am trying to describing below in my conclusions. It may be a key for the researchers who are working with this field.

To say something about quantum gravity, we have to know what gravity is. Everybody in the world will say that gravity is closely related with mass of an object, in accordance with the Sir Isaak newton's law of universal gravitation. I also agree with this theory but here I am intended to say that *gravity is closely related to the frequency of a particle than its mass*. Einstein has explained gravity very well in his theory of general relativity too and we have the very famous equation in the world that $E= mc^2$. This equation is describing the relationship between energy and mass but not giving us a correct definition of mass. Presently scientists who are in this field are trying to get a definition of mass and to gravity. According to me the most precious equation which can help us to get an answer about this question is Plank relation, that $E=hv$. For me this equation is describing the relationship between energy and frequency and most important for my thoughts.

For me, *Gravity is the one and only fundamental force in the universe and the others may create in the inflationary era*. In my thoughts gravity is not a weak force and it doesn't have infinite range. *If we say that gravity has an infinite range, it will be the violation of law of conservation of energy. Infinity will never exist in physics, it exist only in mathematics*. We know that *energy can neither create or destroyed, so the universe must have a finite energy in it*. Once gravity as a property of energy, it must have a finite range with the *frequency of the object (once*

we bring the quantum mechanics in the macroscopic level, we can calculate the frequency of the objects).

I am not describing gravity here; I would like to write my observations about gravity here. Imagine that one train and an airplane are travelling at a same speed at same line and started from the same point. After one hour of their travel they will reach at the same point. We know that earth is rotating on its axis itself. Now we can imagine two objects moving in the same manner as I explain above in a big sphere rotating in its axis itself. We can say the objects are travelling from north to south and the sphere is rotating in its axis from the south to north. After the same interval of time these two objects will be at different positions. The one which travels above the surface of the sphere will cover more areas of the sphere, because the sphere is moving against the motion of that object. In the case of the second object also the sphere is moving against the object but the motion of the sphere is not helping the object to reduce its distances. But for the first object the motion of the sphere is directly helping it to reduce the distance to travel.

Now we will go through the case of earth and check what is happening in the travel of the train and the airplane. Here we can imagine that earth is moving on its axis in the direction of north to south. And the train and the airplane are travelling from south to north. Here we can see that these two will reach at the same point at the same interval of time. But in the case of the sphere the one which travel above from the surface covers more areas of the sphere. It shows us the strength of gravity. According to me gravity is also powerful like other interactions. If we observe the motions of the train and the airplane, we can see that gravity is holding the airplane with the surface of earth in a straight line. The velocity which has the airplane is helping it to cover the distance. If earth's gravity is not holding the airplane in the straight line it will cover more distances in accordance with the rotation of earth on its axis. It is showing us the strength of gravity. At this stage we can imagine that the airplane is not moving and *it is just keeping energy to resist gravity and they are in an equilibrium stage.* So it has the same energy that gravity applying on it. *At this time gravity and airplane are in a straight line and the plane will move according to the rotation of earth*. I am not saying about the artificial satellites and angular momentum, but we can keep objects in the atmosphere of earth even 10 meter high *if we can understand gravity well*. I will give you another example to understand this and what I wrote above about kinetic energy. Imagine that I am throwing a ball vertically against gravity. The force which I applied on the ball is able to bring it at the height of 10m. During this motion the ball will decelerate according to gravity and it will reach at zero velocity. We can observe the ball will stay there at a small time and after that gravity will hold it back. At this stage the ball has the tendency to move against gravity and the remaining kinetic energy with the ball was not able to give motion. So it will try to resist the gravity, but as I explain above kinetic energy is not absorbing by the object, it is just adding to the object and easy to remove. So the action of gravity here is able to remove the remaining kinetic energy from it. If the object is able to keep this kinetic energy with it, it can be keep an equilibrium line with gravity and move according to the rotation of earth. It is just an observation; we need to prove it and need more to study to prove it. I hope the alien technologies like anti-gravity, transparency with light, flying speed are not more distant to us.

Now I would like to show an example to understand the relationship between gravity and frequency. While looking into moon we can see it as a shining object. We know it is not producing any energy itself and it is radiating (reflecting) the sunlight only. An observer on the surface of moon will not see it as shining. The distance between earth and moon is showing us the brightness of moon to us. So by distance we can observe the major parts of the reflection (radiation) of light from the moon. If we think about this we can say the amount of radiation which we are observing is showing us the brightness. So all of the radiating lights and its frequencies are combining together to show us the brightness. What I am intended to say is a single photon doesn't show mass but it shows gravity otherwise light will not bend in gravitational fields. That means gravity is the property of stored energy. If we take an atom as an example the sum of the total energy in it is showing the total gravity of it and energy is closely related with its frequency. So I am interested to say that gravity is closely related to its frequency than its mass.

Conclusions

What I said above are my observations and my thoughts. It leads me some conclusions with the help of the proved theories in current physics. *We can bring everything in a common equation with a combination of planks relation E = hv and Einstein's equation E = mc*^{2}. According to me these two theories are explaining the same things, one with the microscopic level and the other on macroscopic level. So we have to bring them under a specific measurement. The above explained moons observation is giving us the answer for this. Once we are observing the moon on its surface we can't see the reflecting light. Here light for the observer is at microscopic level. Once we are observing the moon from the earth, it shows us the combination of reflecting photons and becomes macroscopic level. So the combination of microscopic objects is giving us macroscopic effect. So for me *the equations E = hv and E= mc*^{2} *are the same and describing in two different ways*. Here I am trying to bring them under a same measurement, so here I would like to write,

$E = hv = mc^2$ (1)

In equation (1), I bring the equation "*E = hv*" under the same value of "$E = mc^2$". That means total energy of a system. We are using this equation in microscopic level, but here I must bring it in the macroscopic level to get the relation between mass and frequency of particles. In the example of the moon observation above, I show the combination of frequency together will create the effects. So here I am bringing the equation "*E = hv*" in macroscopic level because an object or a system is a combination of different particles with different frequencies or energy. So I have to find the sum of the frequency of the particles in it and relate it with the mass of the object. So here "*hv*" is the total energy of the system in accordance with its frequency.

Quantum theory states that, E= hv = hc/λ. According to De Broglies equation λ = h/p, so E = pc.

*Einstein states E = mc2 = mc*c and we can write E = pc.*

$E = pc = pc$ (2)

As I said above quantum theory and classical physics are stating the same thing with different ways. So now here we can find a relation between mass and frequency.

$hv = mc^2$

So,

Frequency $V = mc^2/h$ (3)

Mass $m = hv/c^2$ (4)

Here we can see that plank constant "*h*" and velocity of light "*c*" are constants in this two equations, mass and frequency are the variables in this equation. According to the variation of mass (*mass is a combination of different particle with different frequencies*) the frequency (*frequency of a mass is the combination of the frequencies of the different particles in it*) also varies.

According to equation (4), now we can say that a photon can add a mass of hv/c^2 *to an electron when is absorbing by an electron during the photoelectric effect*. I am concluding this paper here and I think it may be helpful for the researchers.

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