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RESEARCH ARTICLE

PHOTONIC PARTICLES ARE ALWAYS IN MOTION MAINTAINING THEIR LINEAR SPEED 'C' W.R.T. THEIR SOURCE POSITION; BIRTH OF FIRST EVER UNIVERSE, AND THE BIG BANG

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ABSTRACT

Mass moving or capable to move is energy. The very basic fundamental mass is, mass of light photon obtained from Plank's Black Body Radiation Formula $E = h.f$ and the mass energy transformation relation $E = mc^2$. These tiny photonic particles named Dark Photons whirling in space in racing with their anti particles always are in motion. When moving linear at speed c in space, they exhibit as light. They are the building blocks of the universe. They have gravity originally and in motion at speed greater than c in incremental value tending to zero; they exhibit electromagnetic property. When they smash against each other, they glue with each other exhibiting gluonic property. All matter in universe, quark to Black Hole is made up from these basic fundamental particles. The universe itself is born from them. These facts are detailed in this article.

INTRODUCTION

Particle nature of Light is proved still, many physicists deny it; assuming them virtual particles, without mass but, having property of mass, the momentum. Light particles have the same rest mass and the mass in motion. Energy is transmitted by moving fundamental eternal masses in motion. To increase speed of light, energy carrying particle should move at velocity greater than light, 'c' in the frame of light source, which is not possible. when light tries to speed up greater than 'c' it generates electric charge and associated magnetic field to oppose the rise in motion of light as per electromagnetic laws. Light is stopped in BEC and, in a particular crystal. At CERN experiment two intense light beams are collided against each other scattering light. Light particles are so small that, in rarer normal light, they just slip from each other. Light cannot stop of its own because, it is associated with anti-particle with it like its shadow and, the light particle chase it. Therefore, it is always in speed. In Black Body radiation, they are emitted at speed 'c'. That means in black body they are stationary in its atom. But, with respect to center of atom they are in motion where ever they may be either in electron, proton or neutron, or any boson. When in space, They are in local motions like whirling; they form the Dark Energy of the universe; A very bold but, true statement by the author. These photons are called there, Dark Photons.

They have mass and hence gravity originally eternally. They are the building blocks of the universe. When the celestial objects out of expanding universe achieve acceleration, yes, acceleration 'c' they transform into Dark Energy. photons are associated with two virtual entities fermi-ionic and gluonic. The Fermi-ionic is electrical charge and the gluon is energy transferring and mass particles binding entity. The Scientists will be able to detect physically the Dark Photonic matter of Dark Energy, When they will have instruments detection frequency in the range 10^{42} Hz and above, as seen from Planks Black Body Radiation.

Explanation: As per natural inherent law, when and where someone observes anything, he feels it true. But, Relativity explains it to be different. A moving object's actual length is actually greater by a certain amount than its observed length in motion. An electron in the same orbit, of the same atom, on earth will be observed revolving around its nucleus slower than that on planet Jupiter; because, gravity at Jupiter is greater than that on the Earth. Einstein has revealed the facts in common on the universal ground in his 'Special Relativity, 1905; and, General Relativity 1915; research papers'. So, all of us, assume the facts true as we see with the help of our eyes or better with the respective instruments. Then we apply scientific principles to the visualized events to perceive the truth.

[Length Contraction, Time Dilation, Gravity, Total Existence of Universe and Beyond; Published in IJCR: Volume,9; Issue 11, Nov. 2017: : ISSN:0975-333X. and, An Innovative Review of Kennedy-Thorndike Experiment; published in Scientific Research Journal (SCIRJ), Volume V, Issue V, May 2017: ISSN 2201-2796: Free access. Copy right of concerned Journals]. Harvard University Professor, Lene Hau, stopped a light pulse, in one BEC super cooled cloud of 1.8 million of sodium atoms to a billionth of degree K above absolute zero temperature, the light travelling in the cloud like molasses of light, at speed at 200 m per hr. that's, at the linear speed of 3.33 m. per sec. and regaining its original speed 'c' in another sodium cloud of BEC at a two-tenths of a mm. away from the first cloud. Originally every existence is in particle nature. When that particles are released at a speed continuously they travel in groups formed, one behind another serially. Each group has shape of a coconut from its one end to another along the direction of motion, defining its wave nature. In case of radiation, the particles sizes are in nano range and far beyond it. Therefore, wave nature of particles, say, the particles of light, is easier to observe than its particle nature. In quantum mechanics, to describe its energy content, its moving particle nature is considered. A packet of energy includes a group of original particles moving at a speed. It is the external energy of the photons in the group. In addition the original particles in the group have certain motions within themselves constituting their internal energies. The very basic fundamental (mass) particle is invented by the Scientist Plank and it is named as Plank's constant denoted by 'h'. Energy of a radiation is defined as $[E = hv]$ where v is the frequency 'f' of radiation or the light. All radiations are called "light", it may be because, they all travel at the speed of light with quite negligible differences. Solving it with Einstein's mass energy transformation equation $[E = mc^2]$; by substituting $[v = 1]$, we obtain, the mass of a single basic particle of light equal to $[h/c^2]$.

A photon has polar property; that's it is in two plain parts exhibiting a surface and thickness tending to zero and has world line as its fourth dimension the 'time'. The two parts are twisted with respect to (w.r.t.) each other at $[\pi/2]^\circ$. Therefore, light shows polarization phenomena. The photons combine to form quark gluon soup; quarks then form elementary particles electrons, protons neutrons, neutrinos. Then they build different bodies from different molecules to stars and galaxies and clouds of basic particles, radiations and the whole varied universe. So a group of basic particles; and as extended to all matter; a group of material bodies travelling at speed from near zero speed to the ultimate speed, that's the speed of light; is a group of 10^n number of photons 'h' where, 'n' is any integer number. So, I repeat, the photons combine to form quark gluon soup; quarks then form elementary particles electrons, protons neutrons, neutrinos. Then they build different bodies from different molecules to stars and galaxies and clouds of basic particles, radiations and the whole varied universe.

Thus, the original building block of universe is the photon:

The photons which move in space at speed of light w.r.t. observer constitute light. Others doesn't that, but form Dark Energy of cosmos. Let us call them Dark Photons. Please see, very basically, a mass moving is energy. So the dark photons must be moving continuously. How and, why? Please look. A photon has mass $[h/c^2]$. And it whirls along circle of its effective length 'r' as its radius. Every particle has its antiparticle, because, every existence in nature has its anti-existence originally. When particle and antiparticle combine,

they are converted into their small basic existence. The dark photon is the very original basic particle. when it will combine with its antiparticle anti dark photon, both will be transformed into space. So, antiparticle of photon is image of dark photon behind the space. There can't be something behind space literally; here behind space means, something existing very minute than the space, When a dark photon appear in space, at the same instant, its anti-photon appears deep in the space. Gravity is the basic eternal property of the universe. There is not any anti-gravity. They have allotted anti-gravity to Dark Matter to explain the expansion of the universe. So, what happens, the dark photonic particle and its anti-particle attract each other. The particle moves towards its anti-particle but as he approaches it; it goes further away. Space warps spherical around the anti-photon that's the shadow photon. And the photon whirls around it. Its natural whirling linear speed in its circular path is 'c'. Thus, a dark photon defines a sphere of its effective radius. The photon has a surface without thickness means with the thickness tending to zero. Because with that equal to zero, its existence vanishes, It cannot come into existence. Why linear speed 'c' only w.r.t. its source? Because, in catching anti-photon by photon there starts racing; as the photon approaches its anti-photon the anti-photon also shift farther equally. The space holds the shadow but, there is something other which casts its shadow as its anti-photon. Alongwith this whirling motion of the photon it also wanders in space like Brownian motion. In this motion when two photons and serially more than two happen to come within each other's effective distance; they form a big group having resultant whirling motion; thus forming a structure like a Black Hole. But, it is not that. When such two structure with opposite motions collide with each other in space, the elementary particles, the building blocks of the universe are created, giving birth to the materialistic universe This was the story of first ever universe, which when born cannot be computed. But, only can be perceived theoretically physically. So the mass, motion and momentum, this trio is eternal and basic physical existence of the cosmos.

So a photon, born soon it is born with motion around its anti-photon, at speed c. The linear speed 'c' is achieved either in whirling or in straight line motion; because, of photon chasing its anti-photon. And why not greater than 'c'? It is because, if a photon speeds up by an incremental speed also, the electrical charge appears on it. As the charge is moving with the photon it creates a magnetic field along the direction perpendicular, circular to the direction of motion, opposing the speed rise. It has become now the old understanding that electrical charge of an electron is the last the smallest quantity existed in the universe. Partial charges are found with the quarks of elementary particles. Similarly, minute charges must exist with the dark photons of the quarks. In elementary mass particle formation, the whirling dark photons in their spherical effective zones can be found stationary in nano-volumes of space, considering each of its spherical zone as dark photon; and, when these nano-volumes come nearer to each other touching to each other; they get bounded/bonded to each other, forming bigger and bigger masses in steps of quarks, electrons, protons, neutrons...atoms, molecules, etc. different masses, stars, planets, galaxies, ionic clouds, etc. In empty space between them, Which is filled up with above whirling Dark Photons. The space we see empty between terrestrial objects; is not empty; but, is filled with dark photons constituting the Dark Energy. It contains the baryonic energy also. Such a photonic energy field is continued all over the cosmos space in

the 'universe and beyond it also'. There is definite reason to strengthen its existence beyond the universe. The reason is as mentioned below. It is said that Dark Energy is Repulsive due to its antigravity phenomena. But, there is nothing any antigravity. Gravity is the original eternal property of the whole cosmos. There is nothing antigravity in it like +ve verses -ve electric field. Antigravity is just allotted property to Dark Energy. It is not existed. It is allotted to explain the expansion of the universe. On the contrary to this, the gravity field of the Dark Energy outside the universe extended up to infinite distances, all around of the universe, must do attract it and hence the universe is expanding at accelerated rate. As the universe is expanding more and more, internal gravitational forces of the terrestrial/celestial/cosmic bodies are reducing resulting in accelerated acceleration. Therefore, we observe the universe expanding at accelerated rate of acceleration, enhancing the linear speeds of expansion at the edges of universe greater than 'c' making us the far universe un-visible. Because, 'c' is not the limit of speed but, it is the limit of perception that, the nature has imposed upon us to visualize the universe. Thus Dark Energy have not antigravity.

There is Nobel Prize winning research work of three scientists, J. T. Nelsen, A. Guffanti, and S. Sarkar; 'Marginal Evidence for Cosmic Acceleration...' in the year 2016; and, denying universal expansion. It is supporting to me by not accepting the antigravity property of Dark Energy. From other face, their say is totally incorrect. Because, there is not any consideration of the fact of existence of Dark Energy beyond the universe up to infinite distances all around the universe therein. Let us perceive, what is Dark Energy? The very basic definition of energy is, 'the basic fundamental eternal mass photon particle in motion or capable to gain motion from its standstill position', is energy. Shortly, Moving-mass is energy. When there is energy, there is rest mass moving; and hence, mass cannot be denied when we talk about energy. Here I am not talking about the relativistic mass. I am talking about the rest mass. Relativistic mass is the 'feel' of mass due to speed. Assume a mass m_1 moving at speed v_1 and another mass m_2 moving at speed v_2 , both in the same direction and along the same line, but, m_2 behind m_1 and v_2 greater than v_1 . Therefore, m_2 will hit m_1 from behind and will speed it more to the speed v_3 lowering its own speed to v_4 . maintaining the rule of constant total momentum. Further, if the velocity of m_1 is to be increased further from v_1 to v_5 ; observer will have to send m_2 behind m_1 at speed higher than the previous speed v_2 , say at speed v_5 , containing more momentum than previous. It is just the same like inertia of the same mass m_1 has increased when we talk in terms of momentum instead of mass.

The basic condition is to impart momentum to a moving mass to increase its speed; the speed of imparter should be higher than the receiver; whatever its mass may be. It is as if the static inertial mass m_1 has increased. Hence the mass calculated in motion in this way is relative with respect to its static mass. Therefore it is named relativistic mass. Now going deep with microscopic view in the energy, speed 'c' and the mass of photon, we are going to perceive a lot. There is trio that's the three existences for each event in its single perception. Anything existing is an event. Even a point in space is an event. This is the basic definition of event. The scientific basic trio of the universe is mass, motion, momentum. Momentum involves energy, a combination of mass and motion. All these quantities are very basic quantities by all means. The smallest ever existing and are eternal.

Moving mass is energy. Hence energy cannot be separated from mass. Mass is not at all converted into energy and the energy is not converted into mass. Different states of motion of mass give the 'feel' and measure also in its accordance. But, all is relative. The absolute is mass, motion and momentum. All these three entities are firmly connected mutually with each other. There is forth silent factor; and, it is the observer, that's we. As per mass energy conversion relation; mass is not converted into energy; but the internal energy is transformed into another form of energy. Even a fundamental photonic mass particle has internal energy. When a photon mass m , is moving at speed 'c' its external energy is mc^2 ; and, its internal energy is $I\omega^2$, that can be equated to mv^2/r^2 in linear measurement; where, peripheral linear velocity of photon is equal to 'c' with its dark radius r . In fact, in Cosmology it is easy and very suitable to consider the energy in angular measure. Because, it represents the energy of something, to be the same either throughout the universe or, in a constrained space domain, irrespective of relative motions.

The cause of speed 'c' to be the ultimate speed w.r.t. an observer is appearance of electrical charge on the particle. Second phenomena in respect of the Dark Photons is that when, they smash against each other heavily, they stick with each other. In this manner billions of Dark Photons stick together forming quarks. Then quarks stick together in quantity 3 and form either electrons or protons or neutrons. The Quarks glue together by gluon, such that, Quarks, cannot be separated from each other. Thus in Dark Photon in addition to weyl fermion, there is Gluon. It comes out when a Dark Photon smashes against another Dark Photon at speed of each 'c' w.r.t. observer, when it omits gluon like a sticky liquid. Weyl fermionic particles squeeze out the photon directing their electric field in space generating magnetic field opposing the speed rise. This electric magnetic field should not be confused it to be that defining light in space. The photons are very rigid and responsive. They consider the visible light polar in the form of electro-magnetic wave as one electric wave and other magnetic wave, each in one of its plane in space, mutually at 90° to each other as per existing accepted theory; after polarization one of the wave either magnetic or electric light wave is a polarized light wave. And there is a blunder mistake. Because, without electric field there is no magnetic field; and when there is magnetic field it is associated with its mother electric field. Hence, Visible light wave is not an electromagnetic wave; but, it is mechanical wave of particle photons. We were discussing about, how a photon whirl in space, of itself.

We have seen it above how it whirls. These photons whirling at a spot in space are called Dark Photons. So these Dark Photons, along with their whirling motion move at some speed at random in the universe constituting Brownian motion in space; the constants of which can be calculated. We have found quark gluon soup at CERN, but, at the instant of Big Bang, there must be the singularity of 'Dark Photon gluon' invariably. A Dark Photon has Mass and inside it; it has two more things; the Weyl fermion's part and gluon. The Fermion when comes out to surface of a Dark Photon, in its motion $c+$, its field which is electrical -ve field, generates respective magnetic field, which opposes the speed rise above 'c'. And gluon gets squeezed out from the Dark Photon, when it crashes against another dark photon heavily, almost at the speed of light. And the Dark Photons are moving almost at the speed of light in space. The gluon is like a perfect elastic spring. When

two photons crash against each other, their gluons stick with each other's and both of them then whirl around their common axis; because, photons try to slip from each other. When such trillions and trillions and Combine from their whirling action they are bound to form a vortex like structure creating a Black Hole along with its singularity. Then the Universe may be born from the black hole from the mass in Hawking's radiation; first in a balloon like structure; and then expanding. Concentration of mass or collapsing a big mass of whole universe into the singularity is not possible. Because mass cannot do so, whole universal mass cannot concentrate in a fraction of a mm. Because, at a depth of $\frac{2}{7}$ th of its radius, or so, there comes a thin zone where resultant gravity is nil, and this phenomena repeats till the mass center where resultant gravity is zero. 'Where resultant gravity zero' conditions prevail in a mass; there the equal pressure in all directions is not crunching but it is pulling. Hence, in that case, there is not any possibility of the universal mass falling in a point as singularity. Thus, then from Dark Photons to quarks to elementary particles to atoms and further, the universe has been born. So, the universe is born through the Photonic particles gluing with each other by gluons. Gluons cannot be denied mass. The Gluon has mass. It is low mass. Due to present experimental limits it cannot be measured. But, theoretically, Gluon must have mass. As per Dr. S. A. Larin, at Institute for Nuclear Research Russia, in his Research paper, The Gluon Masses should be added in Quantum Chromodynamics, to generate mass gaps as per Kallen Lehmann spectral representation. Not any particle either an elementary particle or any Boson or any fermion or any Baryon has such a small mass as a Dark Photon, the building block of the universe, the original and eternal mass particle. This Dark Energy Particle, must have fermion and Gluon inside it in the sense, it should have the properties of fermions, the properties of Gluon, and also the property of Higgs particle. Because, all these particles are made up from these basic, fundamental particles. When it speeds up with respect to its source it exhibits electrical properties of Fermions and when it crashes against some particle it behaves as Gluon also. All particles are constructed from Dark Photons. Quarks and further all material is constructed by Dark Photons.

Fate of Universe: The universe is expanding with velocity by accelerated acceleration. A velocity of an entity, when reaches value 'c', its further increase in velocity tends its resultant not greater than 'c' after its addition to 'c' but, it shifts its previous velocity 'c' in newly added velocity vector. Thereby the entity tends to gain rotational velocity around its source point of birth. Therefore, the terrestrial bodies gone out our universe, must be achieving curved path around our universe. developing centrifugal forces on self. This is definitely going to disturb their internal atomic structure breaking their atomic structure and all Dark Photons releasing in free space, when they achieve velocities 'c+'. When all or the most of the bodies are lost from the universe; the Dark Matter at unrest as freed from the Bodies will rush in the so called empty space of our universe from all directions at tremendous speed with respect to each other. Two moving particles towards a common point though will be moving at speed c with respect to the common point, they are moving at speed '2c' with respect to each other. In this way the Dark Photons of the past universe will be coming towards the center of the universe at tremendous speeds, crashing against each other and forming the building blocks of the universe, making balloon like structure and recreating the universe. The whirling of Dark Energy Particles' theory of cyclic universe,

explained in flow of explaining 'Dark Photons, will surmount all the concerned theories of 'Birth of the Universe' emerged up till now.

Conclusion

The very basic fundamental eternal moving/vibrating mass particle in the cosmos, in the universe and also its beyond is the Dark Energy. It is defined by the moving Dark Photons with whirling motions in space in chasing their anti-particles. And when they move linear at speed 'c' they define the light. These Dark Photons contain Gluon-material, as well as electric charge material, the fermionic material. These Photons are the building blocks of the cosmos and the universe inside it. [These Dark Photons perfectly resemble with the 'Prapanch' which appears from 'Maya', which may be a virtual entity to Modern Science]. The 'Higgs Boson' detected at CERN in 2012 is a big bunch of these dark photon particles. *Dark Energy is not remained a physical problem. Above defined 'Dark Photons in motion in the space, in the cosmos is the 'Dark Energy'. Nothing beyond this will be found as fundamental form of Dark Energy; thus confirms the Author.*

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