Revealing the Phenomena of Heat and Photon Energy on Dealing Matter at Atomic level

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Abstract –Technology is in the way to reach in its climax but the basic understanding of science in many phenomena is still awaited despite the fact that nature witnesses. Scientific research reveals strong analogy between electron and photon. Atoms of solid state that execute suitable electron transitions excite electron while absorbing heat energy at shunt level. De-excitation of an electron back to original state under the pulling force (gravitational force) of its atom results into depicting force energy along the trajectory shape like Gaussian distribution due to involving inertia at each stage of changing state. This is called unit photon where continuous cycles of excitation and de-excitation result into generate force energy in wave-like fashion propagating in the inter-state electron's gap and due to confined electron-dynamics; in each unit photon, the force energy configures under electron's trajectory while excitation period is due to inertia-levitation-inertia behaviors and force energy configures under electron's trajectory while de-excitation period is due to inertia-gravitation-inertia behaviors. Silicon atom is a model system of it. Uninterrupted confined inter-state electron's motion results into configure force energy that can travel immeasurable length where interruption from the point of generation termed it an overt photon –a long length photon. Such photons increase wavelength under decreasing energy when travelling in the medium other than inter-state electron's gap where light glow is observed on attaining wavelength of their certain density in the visible range. They act as merged photons or squeezed photons while interacting (coordinating) to suitable medium, thus, on merging or squeezing convert into heat energy where atoms like silicon configure them into again force energy under confined electron-dynamics. Thus, heat energy dealing to suitable matter at

atomic level transforms into photon energy. Involving levitation behavior in the course of exciting electron and gravitation behavior in the course of de-exciting electron validates that force of repulsion or attraction in certain materials engages the phenomenon of levitism or gravitism where inertia is exempted. Here, heat energy and photon energy explore matter at electron level. Thus, devise science to describe.

Keywords: Heat energy; Photon energy; Materials Science; Nanoscale Phenomenon; Atomic Scale Phenomenon

INTRODUCTION:

Humanity is being benefited by heat energy and photon energy since the existence and electrical phenomena have been studied since long. Catching fire in various stuffs is a usual phenomenon known since the existence of life. Everyone is taking benefit of these blessings but the understanding behind these phenomena is not clear and their coordination and interaction to various sorts of matter too.

A large number of studies are available in the literature, dealing with light-matter interaction, and it has been covered largely under a phenomenon, namely, surface plasmons. Origin of plasmons was explored in some early published reports [1-4]. A plasmon is a quantum of plasma oscillation and represents the collective oscillations of the free electron gas density – a general definition extracted from the literature.

The interaction of light (photon) to matter is recognized in the form of various terminologies, namely, phonon, excitons, and plasmon, etc. Recently published review discusses the light-matter interaction by taking into account the properties of polaritons modes in two-dimensional materials and applications in the certain range of spectrum [5]. The concept of excitons (electron-hole pairs) was first proposed by Frenkel [6] and deals with excited state of an atom in a lattice travelling in particle-like fashion without net transfer of charge. Excitons can be formed on absorption of photon by a semiconductor (quantum dot) [7]; a phonon is a collective excitation in a periodic, elastic arrangement of atoms or molecules in condensed matter.

A vast number of studies deal the formation process of tiny particles –structure evolution at nanoscale. The tiny-sized cluster is a simple chemical compound which has

variety of important applications in diversified areas [8]. The unique nature of nanocrystals solicits fabrication of new materials of controlled features [9]. The likely development of nanoparticles technology is an obvious long-term benefit [10]. With the success of assembling colloidal matter in a useful structure, the atoms and molecules will also be treated as materials [11]. The investigation of the dynamics of an individual nanoparticle should be taken as a prime concern prior to going for further solid deliberations [12]. A good understanding on the surface features of nanoparticles will lead the development of higher order materials [13]. Tiny-sized clusters possess molecular-like electronic structures and non-fcc geometric structures [14]. Chemical properties of gold nanoparticles change with size [15].

It has been suggested that localized dynamics of the process is one of the cause that helps to evolve the structure of tiny particles in gold [16-20], silver [20], and carbon [21, 22]. Under the process of synergy or impinging electron streams from the regular external source, electron states of atoms are stretched as per available room while they remained bond in the tiny particles [16]. A tiny-sized particle where it doesn't have certain shape, it goes for packing under non-uniform drive [17-20]. The atoms of made tiny particles reveal different modes of stretching electron states depending on the process of synergy or external source of impinging electron streams [16]. However, where impinging of electron streams is regular from the connected external source, the underlying atoms of tiny particles show orientational-based stretching of electron states [16]. The orientational-based stretching of electron states while occupying their atoms in tiny particles can be uniform under the process of synergy too [16]. When the stretching of electron states of an atom is orientational based, it is said to be the elongation of atom and when it is non-orientational based, it is said to be the deformation of atom and all those atoms of solid state behavior with at least one unfilled electron state reveal such behaviors as long as dealing various sorts of interactions to their counterparts [16-24].

Sir Isaac Newton explained the gravity called Newtonian Physics. There is no such concept opposite to gravity in the Theory of General Relativity as explained by Sir Albert Einstein. Bohr proposed that electrons move around the nucleus in allocated orbits

where they have fixed energy as long as atom is in ground state. Therefore, the levitation behavior existing with full clarity at electronic level remains beyond the understandings and the concept of band gap, valence band and conduction band dominated through all along with shells and orbital configurations in an atom kept away to be considered and thought on 'force energy' directed phenomena safeguarding the smallest entity of matter known as electron in an atom and where not safeguarding the smallest entity called unfilled electron state. The more efforts were remained in exploring technological advances and breakthroughs and the efforts put forth toward basic and fundamental sciences along with continuity in the explored ones remained in less focus.

In this work, the phenomena of heat and photon energy have been discussed and then how an atom (matter) utilized the suitable amount of heat energy at electron scale followed by giving out the photon energy. Here, charisma of an atom of solid state behavior executing electronic transition under confined electron-dynamics is discussed where elastically-driven electronic state behavior configured force energy wavelength within inter-state electron's gap. The analogy between electron and photon is explained by taking silicon atom as a model system.

RESULTS AND DISCUSSION:

Under the application of suitable field of photonic current and while wavelength of those photons in inter-state electron's gap, their propagation into flowing inert gas atoms resulted into split them into electron streams where impinging of those to underlying matter transferred the gained force energy due to which atoms of solid state behavior having unfilled states either deform or elongate depending on the mode of impingement as discussed in the case of an atom embedded in tiny particle of two-dimensional structure [24].

In both cases, where either impinging of regular electron streams are not for fixed period to underlying atoms of monolayer tiny particle or the structure of tiny particle is not in two-dimension, the stretching of electron states is non-orientational based. Their electronic structures don't qualify to modify into smooth elements on travelling photons

of hard X-rays. A gold tiny shaped particle was taken as a model system to explain the mechanism of elongation along with modification into smooth elements where that reveal the localized gravity at solution surface [23]. The Fick's laws explain the mechanisms of diffusion of atoms and grains (mass flow) in various materials with respect to concentration both in linear and space steady state behaviors. Our previous studies discussed the mechanism of diffusion of atoms and tiny particles (tiny grains) where origin of diffusion of an atom is the stretching (migration) of electron states but under higher threshold of field force as well as force energy, higher concentration of atoms as well as tiny grains diffused too, as discussed elsewhere [19].

Impinging electrons from the external source, in fact, deal heat as their energy, which is being transferred with force to underlying atoms ready to deform or elongate as long as belong to solid state behavior and posses unfilled state (s) [24]. The heat energy is resulted when a photon of certain length even a 'unit photon' merges or squeezes under the coordination or interaction of the medium. A unit photon has shape like Gaussian distribution as shown in (1) of Figure 1. On squeezing or merging, it transforms force energy into heat energy. In the course of merging, a unit photon compresses the arm resulting into build unit heat energy called shunt energy as shown in (2) of Figure 1. In the course of squeezing, a unit photon doesn't compress the arm but it compresses the arm while squeezing resulting into build unit heat energy called shunt energy as well, which is shown in (3) of Figure 1. However, when a merged photon or a squeezed photon further divides into tits and bits, they purely determine the heat energy where the element of force is diminished, thus, dissipated the energy to medium uniformly, as in water, thus, tits and bits are not called shunt energy. Distribution of heat energy uniformly in the water is under first law of thermodynamics. Such tits and bits of heat energy called phonons which have several options of splitting/dividing in either case, resulted on merging an overt photon or on squeezing an overt photon, as shown in (4) and (5) of Figure 1. As such heat entities deal energy at minute levels but can't deal force, these can only propagate under the medium adjustment and don't travel as in the case of photon energy. However, such tits and bits are being placed always in the surrounding environment of excited state atoms, thus, accumulate under the trajectory

of excited electrons (under shunt energy) while confined electron-dynamics resulting into configure energy (force) in the shape of made path –shape of Gaussian distribution or Normal distribution.
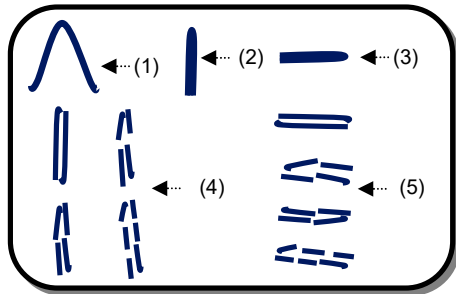
Figure 1: *(1) A smallest entity of force energy shape like Gaussian distribution –called a unit photon, on merging, (2) a merged photon, and on squeezing, (3) a squeezed photon, (4) a merged photon and (5) a squeezed photon transformed into tits and bits called phonons*

A photon characteristic current, in any length, propagates in inter-state electron's gap as the width is feasible for the propagation under naturally embedded force energy of that photon. However, we can observe the burst or damage of copper or steel wire in the case of halting propagation of photons characteristic current either due to distributed inter-state electron's gap or their exceeded density propagation. The length of photon depends on the number of cycles counted between the point of source of generating till the point of interruption and as long as it remains uninterrupted, it is called a wave as shown in (1) of Figure 2; it is also called an overt photon when the electron warping the force energy comes at rest in original state. Merged photons or squeezed photons are the subset of overt photon in a manner that they are resulted on splitting while coordinating or interacting of overt photon to the suitable medium, such as, while placing at air-solution interface, either horizontally or perpendicularly. An overt photon involves several nodes and antinodes resulted on termination of a travelling wave at the point of generation in a suitable atom as shown in (1) of Figure 2. Under appropriate coinciding to a medium, an overt photon transformed into merged photons (2) or squeezed photons (3). However, due to the style of interaction or coordination of an overt photon, it directly provides the squeezed photons utilized for the heat energies. Thus, they don't require compression on squeezing (into heat energy). An overt photon contained the force energy of at least two unit photons.

Due to friction, overt photons transformed into merged photons or squeezed photons and followed further division into tits and bits. Now, on coordinating medium, an overt photon transformed into merged photons, while on interacting medium, an overt photon transformed into squeezed photons. An overt photon is the multiple of unit photon. Thus, an overt photon merges into 'merged photons' while placing (travelling) parallel (horizontally) to the medium as shown in Figure 2, whereas, an overt photon squeezes into 'squeezed photons' while placing (travelling) perpendicular (vertically) to the medium as shown in Figure 2. Thus, the difference in merged photon and squeezed photon is the different process of collapsing of an overt photon.
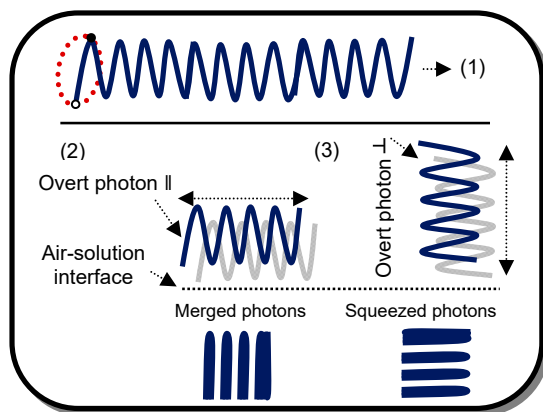
Figure 2: *(1) Force energy configured under the trajectory of an electron while confined dynamics shows propagation in a wave-like fashion in inter-state electron's gap, (2) an overt photon on placing horizontally (∥) at air-solution interface and (3) an overt photon on placing vertically (⊥) at air-solution interface resulted into merged photons and squeezed photons, respectively.*

It infers that a merged photon or a squeezed photon owns discrete energy but doesn't the one where energy was configured in Gaussian distribution like shape, therefore, they deal heat energy at shunt level, which is the amount of energy required to free an electron from the inherent force of nucleus at the instant of excitation where that electron goes to excited state under levitation behavior, however, that electron restores position under the force of nucleus, thus, that atom remains at conserved energy. The heat energy at shunt level may vary from atom to atom depending on the mass (size) of an electron. However, heat energy resulted on collapsing of unit photon, either by merging process or by squeezing process, is remained the same to free an electron to

inherent force of nucleus in an atom from which the unit photon generated as in the case of silicon atom where heat energy resulted on collapsing of own unit photon rightly becomes suitable to free electron at target from the inherent force of nucleus. Thus, different mass (size) and amount (number) of electrons in an atom result into varying the temperature of materials at atomic scale, nano scale, micro scale and bulk scale.

The energy of merged photons (or squeezed photons) is related to heat energy, which is being transferred to suitable atoms under certain arrangement. Such heat energy can't enable electronic excitation in the inert gas atoms due to all filled states. However, atoms of suitable electronic transitions absorb (intake) such heat energy resulting into excite electron at target. Entering of heat energy (at shunt level) results into free electron from inherent force of nucleus. 'Shunt energy' forces the electron from the back side, frees it from the inherent force of the nucleus, which results into excite that electron resulting into occupy unfilled outer state by configuring energy in the integral symbol, when electron comes back under the inherent force of nucleus while de-exciting due to gravitation behavior resulting into configure energy shape-like opposite to integral symbol, thus, the overall energy configured under the trajectory of electron has the shape like Gaussian distribution and is the force energy.

When heat energy of merged photons (or squeezed photons) coordinates to atom like silicon, providing shunt energy to its electron, it is being excited to outer state. As observed in solar panel at 45° angle (approx.) with respect to plane oriented to the south will result into an average maximum power generated throughout the year where configured silicon atoms not only absorbed the heat energy of made merged photons or squeezed photons but also dealt the direct absorption of such photons resulting into bonus power. Therefore, solar panels based on silicon atoms, the probability of electronic excitation becomes higher and systematic resulting into results long length photons, thus, an effective generation of current. Electron-dynamics are restricted within inter-state electron's gap in solid state atoms of electronic transitions as discussed elsewhere [25]. The cycles of excitation and de-excitation of electrons in silicon atoms are non-stop for longer period where on titling silicon solar panel at certain orientation

with respect to base results into varying the efficiency, which is quite effective in the peak hours of sunlight.

In excitation of an electron from the inner state to outer state, the energy configured under the trajectory of electron was mainly due to levitation behavior, when electron was de-excited under its free fall, the energy configured under the trajectory of electron was mainly due to gravitation behavior. That electron included the behaviours of inertia at the start, in between the curve of steady-state levitation and gravitation behaviours, and at the end as well, thus, overall, configured energy is in the shape like Gaussian distribution, which is the force energy. This is a complete cycle of the electron being released from the inherent force of nucleus while absorbing heat energy equal to shunt level. The same amount of shunt energy is being involved to free that electron again for re-exciting. Continuous phenomenon of excitation and de-excitation of electron within inter-state electron's gap results into an unterminated wave wavelength equal to inter-state electron's gap. As in Figure 3 where excitation of the electron (black color) under shunt energy is shown.
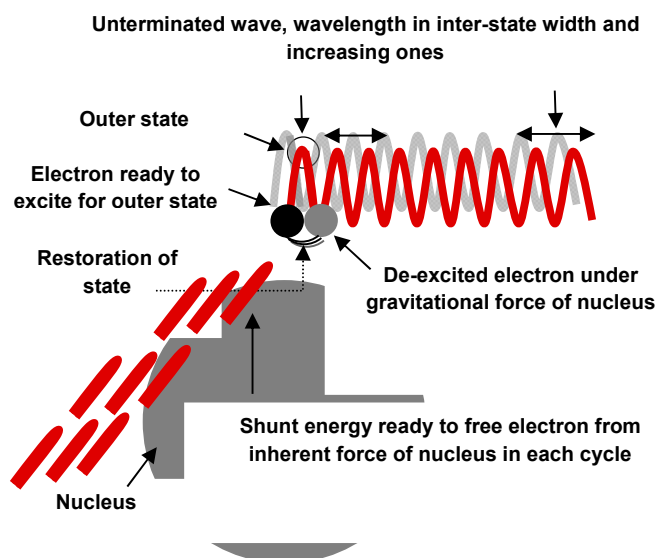
Figure 3: *To free electron from the inherent force of nucleus is under shunt energy, excitation of electron is under levity and de-excitation of electron under gravity (force of nucleus) where repeated process of excitation and de-excitation of electron results into travel the energy in a wave-like fashion, increasing wavelength with respect to point of generation along with the entering of shunt energy to re-excite electron for each cycle.*

The energy configured under the trajectory where electron changed the state was due to inertia while the energy configured under the trajectory in steady-state behaviors of electron was due to levitation and gravitation behaviors. The process of self-returning of same electron to original state after completing 9 cycles shaped the energy like a wave as shown in Figure 3 and the interruption at the point of source generating it, it becomes the overt photon. The same process takes place in many atoms of the lattice which results in generating photonic current under some additional modification required for a silicon solar cell. The heat energy of merged photons or squeezed photons, which is the shunt energy required to excite the same electron 9 times is shown in Figure 3. De-excited electron will arrive at same point from where it was excited, each time, and due to topology of an atom, thus, configuring energy shape like Gaussian distribution against each cycle. However, continued supply of shunt energy to that electron in each cycle of de-excitation to re-excite will lengthen the wave. Thus, in various so-called magnetic materials, the force of repulsion and attraction is not due to magnetism but relates to levitism phenomenon and gravitism phenomenon, respectively, where inertia is exempted due to intrinsic nature of atoms of those materials, for example, in iron. The force of repulsion is due to levitism phenomenon while force of attraction is due to gravitism phenomenon.

Therefore, the shunt energy enters into the atom by placing at the backside of the electron located in the lower state resulting into free it from the inherent force of the nucleus, thus, it goes to outer state where energy is configured under made trajectory due to inertia following by levity and then again due to inertia. The overall shape of configured energy is like integral symbol (∫). At outer state, electron intended to relax for an instant but changed state of rest to state of motion where energy is configured under made trajectory due to inertia following by gravity and then again due to inertia where overall shape of the configured energy is in opposite shape of integral symbol. The tensing of excited electron at outer state and restoring back its state is due to gravitational force of the nucleus acting on it. So, the energy configured in the shape of two integration symbols, opposite to each other, remained connected under the path of

electron resulted into give the overall shape of configured energy like Gaussian distribution as shown in Figure 4.
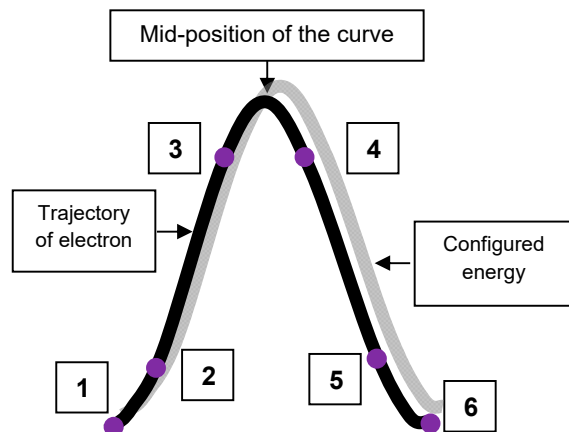
Figure 4: *An electron showing configured energy shape like Gaussian distribution under trajectory – front side (dark color) shows trajectory followed by the electron while exciting from original filled state to outer vacant state and rear side (grey color) shows configured force energy under the trajectory of electron.*

The energy configured along the path when an electron is going to excite under the disturbance of its state of rest, it is due to inertia of the electron, as it is reaching in the state of motion to jump into outer state – (1) to (2) in Figure 4. In the time of exciting the electron, the energy configured under the trajectory is due to steady-state levitation behavior – between (2) and (3) in Figure 4. On turning the electron to go into outer state, the energy configured is due to inertia of the electron – (3) to mid-position of the curve in Figure 4. When the electron is turned into de-excitation, instead of relaxing at point of outer state, energy configures due to inertia of the electron – mid-position of the curve to (4) in Figure 4. In the course of de-exciting the electron, the energy configured under its trajectory is due to steady-state gravitation behavior – between (4) and (5) in Figure 4. The energy configured on reaching to ground position of electron is again under the inertia as it changed the state from motion to rest – (5) to (6) in Figure 4. An equal amount of inertia of electron involved since, to start motion of electron from rest or to come at rest from its motion. Thus, without any breakings, those portions of energy configured under confined electron-dynamics giving out the force energy, which termed as 'unit photon'.

In this context, the heat energy is along the one side of matter dealing atoms of generating the force energy, whereas, the photon energy is along the second side of matter encapsulating the scattered energy and in tits and bits with stationary placement where coordination of suitable matter at atomic level probe it in the most valuable asset (force energy in the form of photonic current formerly known as electronic/electric current). Thus, if heat energy, matter at atomic level and photon energy, they not work in a cycle, then they work like the manner that is giving input to dedicated matter (atoms) in the form of heat energy and taking output to dedicated matter (atoms) in the form of Photon energy. That photon energy works again as the heat energy while interacting/coordinating to suitable matter, thus, working again as the input energy of dedicated matter, which transforms heat energy into photon energy again. In this context, heat energy dedicates matter of suitable atoms to configure it in photon energy. Thus, a photon is the 'force energy', which remains maintained while propagation, more often, in inter-state electron' gap, thus, envisage useful and controlled usage. On the other hand, when travelling such photons, more often, in normal air medium where lose force by dissipating energy called heat under continuous decrease of their wavelength. The origin of photon is the energy resulted due to heat configuring under the confined electron-dynamics giving shape to dissipated heat to propagate (travel) due to construct force energy. In the normal air environment, force energy of the travelling photon is being forced by the surrounding environment, thus, dissipated the energy in the accompanying environment in the form of heat, but resulting into increase the wavelength of travelling photon under lowering force energy as well.

As discussed elsewhere [21], the enhanced field emission characteristic of 'tiny grains carbon films' was related to modified graphitic phase tiny grains into smooth elements [21]; tiny grains modified electronic structure into smooth elements become the source of enhanced field emission and display panel applications. As photonic current propagates in inter-state electron's gap [24], hence, smooth elements of modified tiny grains deliver enhanced field, thus, their more formation in carbon thin films allow straight-forwardly utilization for field emission applications or display panels. The performance of such 'tiny grains carbon films' should be notified in terms of

formation of maximum smooth elements of tiny grains followed by the nature of their structural connections and such films can give phenomenal controlled features as discussed elsewhere [21]. The same approach should be considered in studying phenomena like surface enhanced Raman scattering or localized surface Raman spectroscopy of nanoparticles [26]. Because those phenomena are large studied in the metallic materials where nanoparticles/particles of anisotropic shapes deliver enhanced field due to made smooth elements of two-dimensional structure as discussed in several studies, elsewhere [17-20].

Distribution of heat energy to disordered structure is in non-uniform manner. More heat is resulted in structures where atoms are randomly distributed as photons characteristic current merged or squeezed instead of their entire propagation into inter-state electron's gap. Collapsed photons in tits and bits can again transform into merged photons or squeezed photons, thus, working as the heat energy at shunt level to excite an electron of suitable atom. Similarly, when photons of different energy disrupt the medium (overt photons), they dissipate heat energy in the form of merged photons or squeezed photons. Matter assigns different roles to photons on their interaction or coordination, converting their one form of energy to another and depending on the structural motifs and topology. In Bragg's diffraction, amorphous materials don't reveal any specific structure under the interaction of photons wavelength in X-rays where energy of photons mainly converted into heat rather than visualized in the XRD scan. In some cases, photons characteristic current are utilized to split the matter like inert gas atoms and their electrons streams are being utilized to deform or elongate atoms of electronic transitions [24]. In the stone's age, catching fire was discovered while striking an embedded stone to another stone under intensive acceleration where captured fluke energy at their point of contact converted into 'force energy', thus, under exceeding the wavelength in the air medium, on reaching in the visible range, glow of light appeared but prior to that reduction, the force energy under transformation into heat dissipated into the surrounded environment.

The set modalities of all sorts of photons depend on the origin of their generation establishing roles set by the manufacturer or expert under the coordination or

interaction to suitable matter. In this context, structural design is crucial in targeting their specific application and many studies are now targeting and exploring structure either standalone or in relation to other fields of science [27-36]. Our several investigations discuss that structural motifs are owing to dynamics of the process arisen by characteristics photons and field forces [16-24] where it is proven experimentally in one of the study given elsewhere [18]. In addition to evolution of structure in graphitic phase, amorphous and modified phase of tiny grains carbon film also observed in Raman spectroscopy and energy loss spectroscopy [21]. The field force behaviours are critical depending on the unfilled electron state (s) of atoms, thus, dealing some atoms in gaseous state, some in solid state but carbon work on both sides [37]. A recent study expressed the silent feature and implication of modified electronic structure while using as nanomedicine [38].

On interrupting a wave generating at point of source under confined electron-dynamics executing by a suitable atom, it resulted into long length photon called overt photon, on coordination or interaction to appropriate medium, either placing parallel to or perpendicular to, transforms into merged photons or squeezed photons, respectively, following by transformation into heat energy and where a photon called 'unit photon' merged or squeezed, it results into heat energy called shunt energy. Electrons of all suitable atoms excite under that heat energy called shunt energy on entering or on absorption to those atoms. Whereas, those atoms don't execute electronic transitions, split under the application of photonic current following by increasing wavelength as discussed elsewhere [24]. Therefore, shunt energy is a quantized energy, which is required to free an electron from the inherent force of nucleus, thus, that is a multiplied of unit photon heat energy when dealing electron of multiplied mass. To measure temperature of such materials and in their selective sizes is the integral part to understand science of their different behaviours and some of the studies shed light on it [39-41]. It is possible to measure temperature of atoms, their nanoscale components and at bulk scale as well without the involvement of thermocouples and introducing various gadgets, theories, etc. What is required, to determine the probability of exciting electrons at shunt energy in the atoms of solid state behavior execute electronic

transitions? In the greater mass of electron that heat energy multiplied resulting into give shunt energy of releasing a heavier electron from the force of nucleus.

An electron has mass and it is diffused under the deformation or stretching process of certain nature atoms. In the case of photon, it doesn't have mass and it involves only discrete energy, which is being forced. In this context, overt photons neither diffused nor impinged and they even don't strike, they either propagate or travel where their energy is being absorbed by the coordinated (or interacted) medium. The nature of coordinated photon itself signified as the energy reveals different behavior; propagate as well as travel. Photons wavelength in visible range enable resolution of the image down to 0.2 mm. Photons energy in the wavelength of X-rays propagate through human body and identify the sign of fracture. Photons characteristic current propagate in suitable wire, thus, they are photonic current. Different cameras and devices manipulate the image on screening reflected photons at the surface of an object. When it is said that an electron is spoiled it doesn't mean that the atom of that electron is ionized but it means that the electron occupying atom is no more under elastically-driven behavior and atom enters in the zone where electron is dealing plastically-driven behavior, thus, such atoms either deform or elongate but do not ionize [24]. A recent study explained the role of van der Waals interactions in the case of isolated atom by considering the induced dipoles [42], which can be attained when fluctuations of charge density are in wavelike nature [43].

CONCLUSIONS:

When a merged or a squeezed photon squeezing arms under the inward compression, it directly provides heat energy to electron of the atom at target as long as it doesn't divide into tits and bits. Overt photons are long length photons where an overt photon is transformed into merged or squeezed photons under the coordination or interaction of suitable medium. That heat energy at shunt level enables an electron to free from the inherent force of inner part of atom known as nucleus. Those photons transformed into tits and bits of heat utilized to again configure into photon under inter-state confined trajectory of electron where force energy depends on the number of uninterrupted confined electron's cycles. A photon resulted under single cycle inter-state electron's

excitation de-excitation where inertia was involved is called a unit photon. Exciting electrons under confined dynamics while supplying uninterrupted heat energy results into immeasurable length of energy travelling in a wave-like fashion, on interruption called a photon and on collapsing called heat energy. On interrupting the energy configuring in a wave-like fashion at the point of source of generating, it becomes the overt photon, which is a long length photon, when coordinated or interacted to suitable medium, it transforms into either merged photons (on parallel placing to medium) or squeezed photons (on perpendicular placing to medium). Thus, heat energy and photon energy work one after the other where intermediate component is a suitable matter. On collapsing photons by the suitable medium resulted into heat energy and on reconfiguring that heat energy *via* suitable atoms again transformed into photon energy. Therefore, those atoms are naturally built-in machines.

In various materials, structural adjustments to different forms of energy find the way out for certain application, indicating that design of the material manipulates energy for targeted application. Photons characteristic current, when it collectively propagates in suitable wire, it is a photonic current. An electron has strong analogy to photon in a manner that inter-states electron's motion result into configure energy shape like a wave where at each state of changed motion, inertia is involved.

Structure of certain materials deliver straight-forward application on interacting or coordinating (or both) to heat energy or photon energy, for example, solutions of various metallic colloids and quantum dots, on interacting light, split light into different colors depending on the refraction reflection modes along with size and shape of the nanoparticles/particles and 'tiny grains carbon films' give enhance field emission characteristic on the basis of aligned inter-state electron's gap in carbon atoms dealing graphitic phase. In certain materials, the force of repulsion or attraction is due to levitism or gravitism phenomenon. When inertia is involved depending on the nature of electron states of an atom, the resulted behavior of electron deals it as well, whenever changed the state and responsible for propagating/travelling the energy in a wave-like fashion. All atoms of solid state behavior execute electronic transitions are naturally built-in

machines (devices) to utilize heat energy and transform it into photon energy and atoms of silicon lattice are the model system.

The heat energy utilized to free an electron from the force of nucleus is being utilized to release it only and it has nothing to do with energy configuring under electron's trajectory. The energy placed under the trajectory of electron from the surrounding medium while in exciting period deal inertia-levity-inertia behaviours where energy configured in integral symbol. However, while in de-exciting period deal inertia-levity-inertia behaviours where energy configured in inverted integral symbol. An electron is a matter, perhaps, the smallest entity of matter and it is the most valuable when it works within natural confinement.

Clearly, electrons are matter, occupy space, possess mass and impinge (or strike) under taken energy from external source while they excite/de-excite from internal source under the absorption of shunt energy. Whereas, all types of photons possess energy as well as force but not mass, they use space in propagation within the gap of their source of generation (inter-state electron's gap) where their wavelength remain confined. However, while their travelling in normal air medium, they dissipate their force energy into heat, thus, decreasing the wavelength, so, they are not the ones impinging (or striking) or exciting (de-exciting) under confined dynamics.

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