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

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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 justifies all those. Scientific research reveals strong analogy between electron and photon. Atoms that execute suitable electronic transitions, on absorbing heat energy at shunt level, excite their electrons. De-excitation of an electron under the gravitational force of its nucleus, where inertia is involved, results into depicting energy in the shape like Gaussian distribution. The wavelength of photon remains in inter-state electron's gap where the source of generating energy in wave-like fashion is due to confined electron-dynamics of that atom eligible to execute electronic transition; energy configures under electron's trajectory while excitation period is due to inertia-levitation-inertia behaviours and energy configures under electron's trajectory while de-excitation period is due to inertia-gravitation-inertia behaviours. 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 a photon. Such photons increase wavelength under decreasing energy. Here, I discuss that heat energy is due to merged photons or squeezed photons and photonic current is due to the configuring energy in inter-state electron's gap under confined electron-dynamics of the atom. Force of repulsion or attraction in certain materials engages the phenomenon of levitism or gravitism where inertia is exempted. Structural motifs and dynamics are subjected to characteristic photons as long as atoms are dealing neutral behavior of field forces. A structural design delivers straight-forward application on dealing photons of certain wavelengths. 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 light since the existence and electrical phenomena have been studied, since antiquity. 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.

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.

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-sized particles –structure evolution at nanoscale. The tiny-sized cluster is a simple chemical compound which has a 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-sized 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 diffused as per available room while they remained bond in the tiny particles [16]. A tiny-sized particle where it doesn't have certain geometric structure, it goes for packing under non-uniform drive [17-20]. The atoms of made tiny-sized particles reveal different modes of diffusing (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 diffusion of electron states [16]. The orientational-based diffusion of electron states while occupying their atoms in tiny-sized particles can be uniform under the process of synergy [20, 23]. When the diffusion of electron states of an atom is orientational based, it is said stretching of atoms and when it is non-orientational based, it is said deformation of atoms [16-24].

Sir Isaac Newton explained the gravity called Newtonian Physics. There is no such concept of anti-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 along with shells and orbital configurations of electrons kept away to consider and thought on 'force energy' directed phenomena safeguarding the smallest entity of matter (electron) around the nucleus. 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 mechanism of formation of heat energy and photon energy has been discussed and then how matter at electron scale utilized the heat energy and generated the photon energy. Here, charisma of an atom capable to execute electronic transitions under confined electron-dynamics is discussed while restricting to elastically-driven electronic state behavior. The analogy between electron and photon is explained by taking silicon atom as a model system. This study purely determines the heat energy and photon energy when dealing matter at electronic level where role of the field force is being exposed.

RESULTS AND DISCUSSION:

Under the application of photonic current, inert gas atoms split into electron streams, while their impinging to underlying matter they (electron streams) transferred gained force energy resulting into either deformation or elongation depending on the mode of impingement as discussed in the case of the atom of two-dimensional tiny-sized particle [24]. The impinged electrons are those resulted from the inert gas atoms on split under the application of photonic current [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 diffusion (stretching) of electron states is non-orientational based. Their electronic structures do not modify into smooth elements on travelling photons of hard X-rays while placing horizontally and geometric monolayer tiny particle of gold was taken as a model system to explain the mechanism of development, stretching and modification into smooth elements [23]. More or less, the same is the case in a silver tiny-sized particle [20]. Again, the same behaviours of atomic deformation and stretching were observed in 'tiny grains carbon films' [21] where elongated graphitic structure of tiny grain modified into smooth elements while travelling hard X-rays photons, on placement horizontally. In the events of diffusing electron states or stretching of electron states, atoms deform or stretch depending on the number of electrons along with unfilled states so with their entire tiny-sized particles as discussed elsewhere [19]. Diffusion process of grains and atoms in various materials under steady state has been explained by the Fick's laws. But the diffusion (or stretching) of electron states, which, in fact, enable the diffusion of their atoms as well as tiny-sized particles as discussed elsewhere [19].

Impinging or striking of electrons from the external source, in fact, deal heat as their energy, which is being transferred to atoms of deformation or stretching [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 as shown in (2) of Figure 1. In the course of squeezing, a unit photon do not compress the arm but has been compressed the arm while squeezing resulting into build unit heat 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. 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 both case 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 placed by surrounding environment of excited state atoms, which follow the trajectory of excited electrons under confined dynamics resulting into configure energy in the shape of made path.
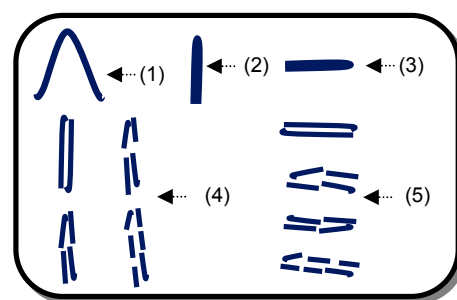
Figure 1: *(1) A smallest entity of force energy shape like Gaussian distribution –called a unit photon, on merging, (2) a merged photon, and on squeezing, (3) a squeezed photon, (4) a merged photon and (5) a squeezed photon transformed into tits and bits called phonons*

On the other hand, a photon in any length propagates in inter-state electron's gap as the width is feasible for the propagation by utilizing the force energy. The length of photon (the amount of force energy a photon carries) depends on the number of cycles counted between at the point of source generating till at the point of interruption and as long as remains uninterrupted it is called a wave as shown in (1) of Figure 2; it is also called an overt photon. 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 force energy of at least two unit photons.

Due to friction, overt photons transformed into merged photons or squeezed photons following by their 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. Marconnet *et al.* [25] reviewed heat conduction phenomena in details for carbon nanotubes and related nanostructured films.
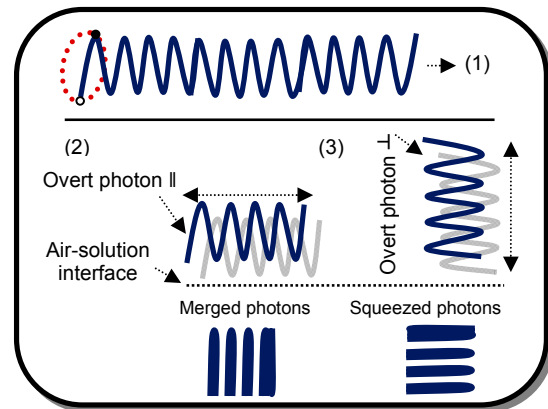
Figure 2: *(1) Force energy configured under the trajectory of an electron while confined dynamics shows travelling in a wave-like fashion and an overt photon on placing (2) horizontally (‖) while travelling at air-solution interface or on placing (3) vertically (⊥) while travelling at air-solution interface resulted into merged photons or 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 the behavior of levitational force, however, that electron restores position under the force of nucleus, thus, that atom remains at conserved energy. The heat energy at shunt level remains the same for all atoms having the phenomenon of electronic transitions as long as carry the mass of electron equal to the silicon one and different number of electrons in an atom result into varying the temperature of materials at atomic scale, nano scale, micro scale and bulk scale and the detailed work on temperature mapping of different materials will be presented in a separate submission.

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 to 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 higher 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, which is a 'force energy' called unit photon.

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 higher 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 long length photons, thus, an effective generation of current. Electron-dynamics are restricted within inter-state distance (gap) in atoms of electronic transitions as discussed elsewhere [26]. 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 higher 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 electron. 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 distance results into an unterminated wave of wavelength equal to distance of inter-state electron's gap. As clarified in Figure 3 showing excitation of electron (black color) under shunt energy.
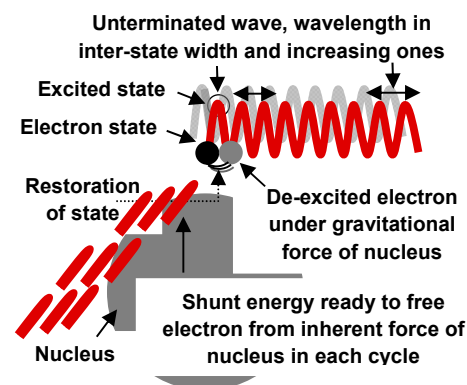
Figure 3: *To free electron from the inherent force of nucleus is under shunt energy, excitation of electron is under levity and de-excitation of electron under gravity (force of nucleus) where repeated process of excitation and de-excitation of electron results into travel the energy in a wave-like 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 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 excited 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 ($\int$). At higher 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 higher 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.
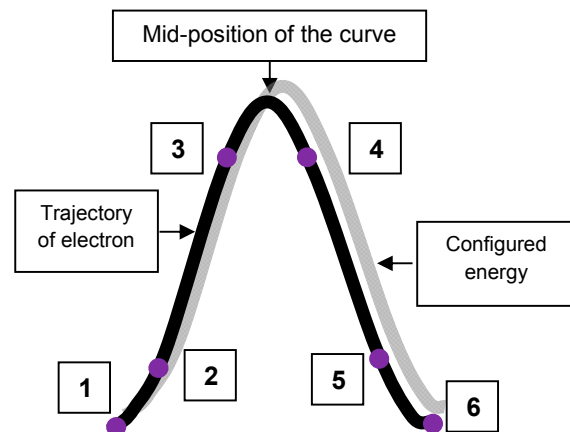
Figure 4: *An electron showing configured energy shape like Gaussian distribution under trajectory – front side (dark color) shows trajectory followed by the electron while exciting from original filled state to higher vacant state and rear side (grey color) shows configured 'force energy' under the 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 higher 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 higher 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 higher 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 'force energy', which is called 'unit photon'.

It has been discussed that all structural motifs are subjected to characteristics photons and field force behaviours [18]. However, under certain conditions of the process where the group of atoms dissociated from the precursor or compound, they made directly tiny clusters in a large amount, for example in the case of carbon films [21, 22]. At this instance, amalgamation of atoms do not demand attaining dynamics prior to their amalgamation as they already amalgamated since dissociation, thus, they only require to execute electron-dynamics for their binding and to stabilize their lattice. Therefore, in such cases where atoms are in the form of bunch, initially, they do not include the field force behaviors and the formation of structure is only under the application of characteristic photons. As Shown in Figure 5, atoms (of all suitable elements) of tiny cluster are binding under the absorption of heat energy resulted from the characteristic photons; in Figure 5 (a) atoms in the form of bunch (tiny cluster) are dissociating from the precursor/compound, whereas, in Figure 5 (b), a tiny cluster stabilized the lattice on binding atoms through localized heating provided by characteristic photons, on merging or squeezing. However, photons characteristic current or other having suitable wavelength may work as a field force when operating from a distance, effectively.
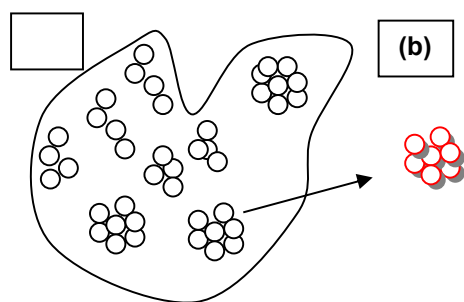
Figure 5: *(a) Atoms positioned in the form of bunch (tiny cluster) in their associated precursor and (b) atoms bind under electron-dynamics while absorbing heat energy of characteristic photons.*

In various 'tiny grains carbon films' their field emission applications are due to formation of smooth elements on the modification of tiny grains having graphitic structure [21]. Those 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 utilizing straight-forwardly 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 [27].

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 dissipate heat energy within such structure by mingling to each other, crossing, overlapping, thus, raise the temperature (heat) of the structure. Collapsed photons in tits and bits can again transform into merged photons or squeezed photons, thus, working as the heat energy for suitable atoms. 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 structure and topology. In Bragg's diffraction, amorphous materials don't reveal any specific structure under the interaction of photons wavelength in X-rays. Photons, on altering shape along with 'force energy' work as heat energy through which atoms of suitable elements excite electrons generating photons characteristic current. They propagate in inter-state electron's gap wherever the available

besides wires known in their metallic character while working as a photonic current [24]. 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 stretch 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, exceeding the wavelength in the air medium and while reaching in the visible wavelength glow of light appeared but prior to that dissipate heat energy along with light called fire.

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 characteristics matters. 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 [28-37]. 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]. However, where the behavior of field forces are neutral, the only characteristics photons play role in controlling the structure of suitable material as in the case of graphite and in other suitable two-dimensional structure depending on the process parameters. However, characteristics photons and field force behaviours are at forefront in the design of any sort of material and it is not possible to design even ordinary featured structure without their involvement [18]. In addition to evolution of structure in graphitic phase, amorphous and modified phase of graphite structure (those modified into smooth elements), a 'tiny grains carbon film' also revealed diamond, lonsdaleite and graphene phases in Raman spectroscopy as well as in energy loss spectroscopy [21]. The field force behaviours are critical in atoms, thus, dealing them in different states [38]. A

recent study expressed the silent feature and implication of modified structure at electronic level while using as nanomedicine [39].

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 [40-42]. 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 revealing the phenomenon of electronic transitions? Atoms with less number of electrons reveal higher temperature owing to lower probability of exciting electrons under available heat energy. 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 do not 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. Thus, the mass of an electron may also be considered and will become an important chapter for future research.

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 by the design of its shape. 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; diffract, propagate, absorb, etc. 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 diffracted 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 stretch but do not ionize [24]. A recent study explained the role of van der Waals interactions in the case of isolated atom [43]; they arise from induced dipoles, which can be attained when fluctuations of charge density are in wavelike nature [44].

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 called shunt energy enables an electron to free from the inherent force of its nucleus in the most of the atoms carrying the same mass of their electrons. In the greater mass of electron that heat energy multiplied resulting into give shunt energy to release a heavier electron from the force of nucleus. Those photons transformed into tits and bits

of heat utilized to again configure into photon under inter-state confined trajectory of electron where its energy depended on the number of uninterrupted executed 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. 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 the medium) or squeezed photons (on perpendicular placing to the medium). Thus, heat energy and photon energy work in a cycle where central part is a suitable matter, on collapsing photons under the suitable medium giving out the heat energy and on filtering that heat energy through the suitable atoms giving out into photon energy. Therefore, those atoms are naturally built-in machines. 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.

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 structure. 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 electronic gauge of atom, the resulted behavior of electron deals it as well, whenever changed the state and responsible for travelling the energy in a wave-like fashion, which propagates in a suitable wire having inter-state electron's gap to work as current. All suitable atoms of electronic transitions are naturally built-in machines (devices) to utilize heat energy and transform into photon energy and atoms of silicon lattice are the best choice to deliver photon energy in long length, thus, work as photonic current. An electron is a matter, perhaps, the smallest entity of matter and it is the most valuable when it works within natural confinement.

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, which place (come) under the trajectory from the surrounding medium under the directive of inertia-levity-inertia behaviours (energy configured in integral symbol) and inertia-gravity-inertia behaviors (energy configured in inverted integral symbol).

When atoms of certain materials dissociated in bunch their dynamics (electron) are only subjected to characteristic photons where behaviors of field forces remained neutral. Where the force element doesn't remain effective or becomes negligible only energy of photons operate in building and setting the structure, which is admissible in materials where atoms are already in bunch. In this instance, the attained dynamics no longer exist.

Clearly, electrons are matter, occupy space, possess mass and impinge (strike) under given 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 source/medium

dealing their wavelength) or travelling while dissipating heat (on collapsing shape) where their force is diminished but their energies work, thus, they are not the ones impinging (striking) or exciting/de-exciting electrons.

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