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# Revealing Phenomena of Heat Energy, Levity, Gravity and Photons Characteristic Current to Light on Dealing Matter to Sub-Atom

**Mubarak Ali**

Department of Physics, COMSATS Institute of Information Technology,
45550 Islamabad, PAKISTAN
mubarak74@comsats.edu.pk or mubarak74@mail.com, Ph. +92-51-90495406

Technology has nearly reached to its climax but the basic understanding of science in many phenomena is still awaited. 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, where inertia is involved, results depicting energy in the shape-like Gaussian distribution. The wavelength of photon at point of generation remains in inter-state electron's gap distance and atoms of all those suitable elements that glitter perform like magician, throwing one and catching other, where an electron excites at shunt level of energy and configure trajectory under inertia-levity-inertia and de-excites at free fall configuring trajectory under inertia-gravity-inertia and silicon atom is a model system. In such atoms, heat energy of merged photons is cultivated and that shunt energy perturb the balance of inherent energy between electron and nucleus while balancing it *via* another electronic transition in reverse mode of the same atom. Uninterrupted confined inter-state electron-dynamics results into wave that can travel immeasurable length and on breaking inter-state electron-dynamics results into fixed length discrete energy wave called a photon. Such photons increase wavelength on decreasing frequency, propagate to hard X-ray, to visible spectrum, and to beyond. Here, I discuss that heat energy is due to merged photons, photons characteristic current are due to photons having wavelength in inter-state electron's gap distance and light is due to photons having wavelength in visible spectrum. Force of repulsion or attraction in certain materials engages the phenomenon of levitism or gravitism instead of magnetism where inertia is no longer prevailed. All structural motifs and dynamics are subjected to characteristic photons as long as bearing the neutral behavior of the external forces. A structural design delivers straight-forward application on coordinating different energy shaped photons. The various gadgets, devices and instruments only operate energy as per need of necessity. Here, materials science explores matter to sub-atomic level while coordinating and interacting energy and devises science to describe.

***Keywords:*** Materials Science; Heat and photon energy; Nanoscale Phenomena; Atomic Scale Phenomena; Sub-Atomic Scale Phenomena

## 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 antiquity. Everyone is taking benefit of those blessings but the clear understanding behind those phenomena is hazy and their coordination to various sorts of matters is peculiar.

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

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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 applications having certain range of the 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 with formation process of tiny-sized particles – structure evolution at nanoscale in those atoms. 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 having 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 in development of higher order materials [13]. Tiny-sized clusters possess molecular-like electronic structures and non-fcc geometric structures [14] and chemical properties of gold nanoparticles change with size [15]. A variety of strategies to process material in different length scales have been introduced and discussed in the literature by keeping in view particular emphasis on the shape and size. From another perspective, research in the field of optics, radiations, photonics and light is also on the way and growing rapidly.

It has been suggested that localized dynamics of the process is the main cause that helps to evolve the structure of tiny-sized particles of gold [16-20], silver [20], and carbon [21, 22]. Under the process of synergy and impinging electron streams from the connected external source, electron states of atoms of tiny particles are diffused as per available room [16]. A tiny-sized particle where it doesn't have a specific geometry, it goes for packing under non-uniform drive [17, 20]. Thus, their atoms reveal various sorts of diffusion of electron states depending on the process of synergy and external source of impinging electron streams. However, where impinging of electron streams is regular, the underlying atoms of monolayer tiny-sized particle reveal diffusion of electron states, which is based on orientation [16]. When the diffusion of electron states of an atom is based on orientation, we say stretching of atoms or one-dimensional elongation of their tiny particles, and when it is non-orientationally based we say deformation as discussed previously [16, 23]. In both cases, where either impinging of regular electron streams are not for fixed period with respect to underlying atoms of monolayer tiny particle or the structure of monolayer tiny particle is not in two-dimension, the diffusion of electron states can be non-orientationally based. Their electronic structures do not modify into smooth elements on propagating photons of adequate energy and same is the case, on packing, into large-sized particles as discussed elsewhere in the case of gold lattice [17-20]. The same is the case in silver lattice [20]. Additionally, the same mechanisms of atomic deformation and stretching were observed in tiny grains of carbon thin films [21] and tiny grains elongated one-dimensionally forming smooth elements on propagating hard X-rays photons, has also been discussed elsewhere [22]. Again, monolayer tiny particle geometry in rhombus shape was chosen to explain uniform photon couplings in binding atoms, stretching and deformation along with formation of smooth elements [23].

In this work, I have discussed those overt photons (where several nodes and antinodes are available) that coordinate medium while interactions, change them, into merged

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photons or squeezed ones, they are heat energy, and their absorption by atoms capable of executing suitable electronic transitions involving inertia resulting into photons characteristic current. Then atoms that do not execute electronic transitions split under the application of field of photons characteristic current (photonic or photo current) resulting into formation of impulsive terminals, hence, switching of photons characteristic current to ones increasing wavelength. Here, I discuss the charisma of an atom, which is capable to execute demanded electronic transitions under controlled electron-dynamics while restricting phenomenon of elastically-driven electronic states only. The analogy between electron and photon is explained by taking silicon atom as a model system. Structural response and relevance to various forms of energy is discussed as well.

**RESULTS AND DISCUSSION:**

Under adequate amount of energy, which is due to photons characteristic current, inert gas atoms split into electron streams and nucleus. These electron streams transferred gained energy to underlying atoms of tiny particles, on impingement. Atoms of suitable electronic transitions remain positioned in tiny-sized particle. The impinged electrons are ejected from the inert gas atoms under the application of photonic current [24]. Regardless of that inert gas atoms do not execute electronic transitions they intake photons characteristic current *via* their inter-state electrons' gap distance, that's why, forced out electrons are ejected in the form of streams. This is not only in atoms of inert gases but in hydrogen atoms as well under suitable field of photons characteristic current and other suitable materials known in their forming so-called plasma. On splitting of atoms, electrons are transferred to underlying atoms capable of executing electronic transitions, for example, gold, silver, carbon, etc., as a result, electron states of atoms are diffused in the orientation of impingement. Such atoms deform or stretch depending on the mode of impinging electron streams (also the mode of the process of synergy) along with structure of tiny-sized particle. When atoms of monolayer one- or two-dimensional structure stretched one-dimensionally at electron-solution interface, electron states of atoms diffused orientationally as well. Simultaneously, at photon-solution interface, their one-dimensionally elongated electronic structure formed smooth elements under the propagation of photons having wavelength in hard X-rays range [16]. The mechanisms of deformation and stretching of single atom positioned in tiny-sized lattice along with coordination of hard X-rays photons are shown in Figure 1 ($a_1$)-($a_6$) and in the case of one-dimensional array of three atoms shown in Figure 1 ($b_1$)-($b_3$). Photons wavelength in hard X-rays possess energy to create inter-spacing distance of smooth elements in the range of ~ 0.1 nm to ~ 0.2 nm as has been discussed elsewhere [19].

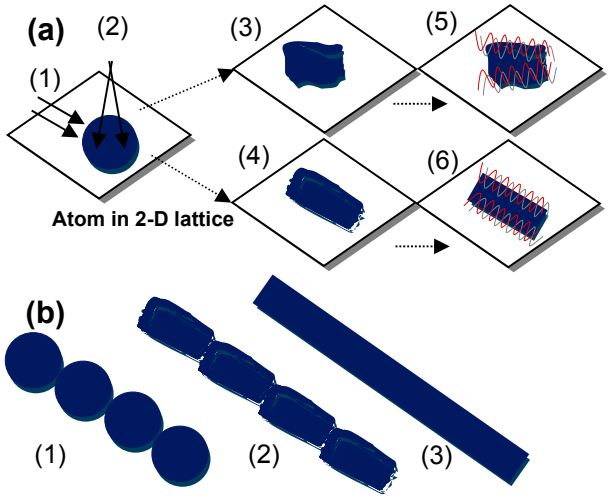


**Figure 1:** *Impinging electron streams to atom positioned in monolayer two-dimensional lattice at ($a_1$) fixed angle, ($a_2$) different angles, ($a_3$) atom deformed, ($a_4$) atom stretched, ($a_5$) electronic structure of deformed atom didn't form smooth element under the propagation of hard X-rays photons but ($a_6$) electronic structure of stretched atom formed smooth element under the propagation of hard X-rays photons and ($b_1$) one-dimensional array of atoms, ($b_2$) one-dimensionally elongated array and ($b_3$) smooth element of one-dimensionally elongated array.*

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Merged photons (or squeezed photons) are subset of overt photons as they resulted under their coordination and interaction to medium and have been shaped in different forms where propagation in exceeding wavelength is not a issue. Instead of photons with definite wavelengths involving several nodes and antinodes (overt photons), now they are more in tits and bits. Due to friction, their energies have been transformed into heat energy and they are termed 'merged photons' or 'squeezed photons' or they are simultaneously merged as well as squeezed ones. More likely, on coordinating medium overt photons mainly transformed into merged photons, while on interacting medium overt photons mainly transformed into squeezed photons. Such heat energy can't be absorbed by the inert gas atoms and also inadequate to split them in electron streams and nucleus, however, atoms of suitable electronic transitions are capable to absorb (intake) such heat energy in their band gaps to effectively excite their electrons under localized (confined) electron-dynamics. Thus, energy of merged photons (or squeezed photons) is related to heat energy, which is being transferred to suitable atoms under certain arrangement. Such heat energies, on propagating into band gap of atoms, do not let to diffuse the electron states but instead excite electrons under the shunt energy required by an electron at target. Diffusion process of grains and atoms in various materials under steady state has been explained by the Fick's laws. But the diffusion of electron states of atoms remained unexplained as electrons transferred the forced energy to the ones having capability to stretch or deform on split of certain nature atoms (inert gas atoms) [16]. Marconnet *et al.* [25] reviewed in details the heat conduction phenomena in carbon nanotubes and related nanostructured films. Merged photons (or squeezed photons) of different marks of associated energy, which may either coordinate suitable atoms to execute electronic excitation or not are shown in Figure 2.

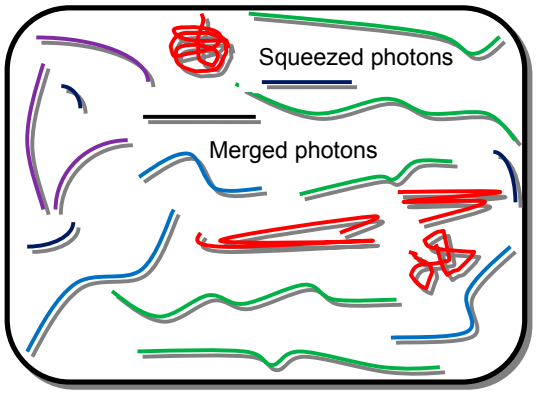


**Figure 2:** *Different Merged photons (or squeezed photons) revealing different signatures (both in shape and size) of associated heat energy.*

As discussed, where impinged electron streams to atoms of one-dimensional arrays are at fixed angles, diffusion of electron states of atoms is in the orientation of impingement, as a result, atoms stretch instead of deform, thus, form smooth elements under the application of hard X-rays photons. In the case where atoms do not form one-dimensional arrays of structure, impinged electron streams deform them, and electron states of atoms are diffused non-orientationally. These phenomena are clear, observable and understandable when atoms of suitable electronic transitions configured in tiny-sized particles. Atoms which standalone reveal different behaviors of stretching and deformation as they can vary positions under the force of impinging electrons streams either from the external connected source or under the process of synergy. Obviously, the drive of single atom under attained dynamics in the medium is zigzag where diffusion of electron states may not be systematic as in the case when a part of tiny-sized particle.

When heat energy of merged photons (or squeezed photons) coordinates to atom like silicon, providing energy reaching upto shunt level of its electron, an electron is excited to higher state. As observed in solar panel at 45° angle (approx.) with respect to plane oriented to the south (Figure 3) will result into an average maximum power generated throughout the year where configured lattice of silicon atoms not only absorbed the heat

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energy of merged photons but also dealt direct absorption of radiations, thus, provided bonus shunt energy to those atoms. However, the latitude of the geographical location is the key where solar panels should be mounted along with time of the year. That bonus energy excited electrons at faster rate and locating shunt energy to excite electrons of atoms is involved for less time. A merged photon (or squeezed one) may not deal discrete amount of energy required to excite an electron and it can only be excited on reaching energy at threshold level called shunt energy. In silicon lattice, the probability of electronic excitation in atoms becomes higher and systematic resulting into long length photons involving greater energy, thus, an effective generation of current.

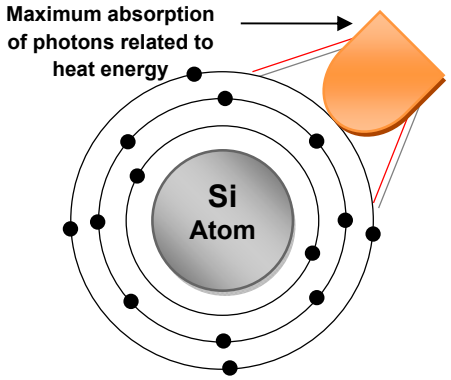


**Figure 3:** *Silicon atom shows favorable orientation with respect to reside plane to absorb maximum compatible energy of merged or directed photons resulting from sunlight throughout the year.*

Electron-dynamics are restricted within inter-state distance in atoms having the phenomenon of electronic transitions as discussed elsewhere [26]. The cycles of excitation and de-excitation of electrons in silicon atoms are at fast rate and non-stop for longer period. 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 Figure 4 (a), transition of single electron in the inner most shell of silicon atom is shown where it is excited to one state higher as indicated by upward arrow and energy configured in the trajectory of electron, when electron was de-excited under its free fall, its trajectory was again configured with equal amount of energy. This is a complete cycle of electron, which results into frame energy in shape-like Normal distribution. De-excited electron is denoted by the grey color and excited position is in blank dot. Both excited and de-excited states of an electron are indicated by arrows along with shunt energy required to excite it. The shunt energy required to re-excite the same electron is also labeled. Another electron is also shown in Figure executing the same phenomenon as discussed above but in the middle shell where the shunt energy is indicated in rearward. Continuous phenomenon of excitation and de-excitation of electron within inter-state results in an unterminated wave of wavelength equal to inter-state electron's gap distance. As further clarified in Figure 4 (b) where only single electron was considered (in black color), which excited under absorbed energy at shunt level as indicated by arrow. The potential energy of excited electron is the maximum on reaching to higher state and on restoring back to original position under gravity the kinetic energy becomes the maximum. However, the energy configured at the trajectory of excited electron while in steady-state is due to levity (anti-gravity/negative gravity) as gravitational force diminished and levitational force prevailed. The process of self-returning of same electron to original state after completing 9 cycles shaped the energy like wave as in Figure 4 (b), which is called photon as it has the fixed amount of energy configured against 9 cycles of the electron. The same process takes place in many atoms of the lattice which results in generating photonic current (photo current) along with some additional modification required for a silicon solar cell. The filtered heat energy of merged photons (or squeezed photons) at shunt level, which is required to excite same electron 9 times is shown in Figure 4 (b). De-excited electron will arrive at same point from where it is excited and due to topology of an atom, thus, configuring energy shape-like Gaussian distribution against each cycle. On de-

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excitation, an electron comes into same level as possessed, prior to excite. However, continued supply of shunt energy to that electron in each cycle of de-excitation to re-excite will lengthen the wave. Energy of the atom remains conserved as electron de-excited under same amount of releasing energy and according to law of conservation of energy.

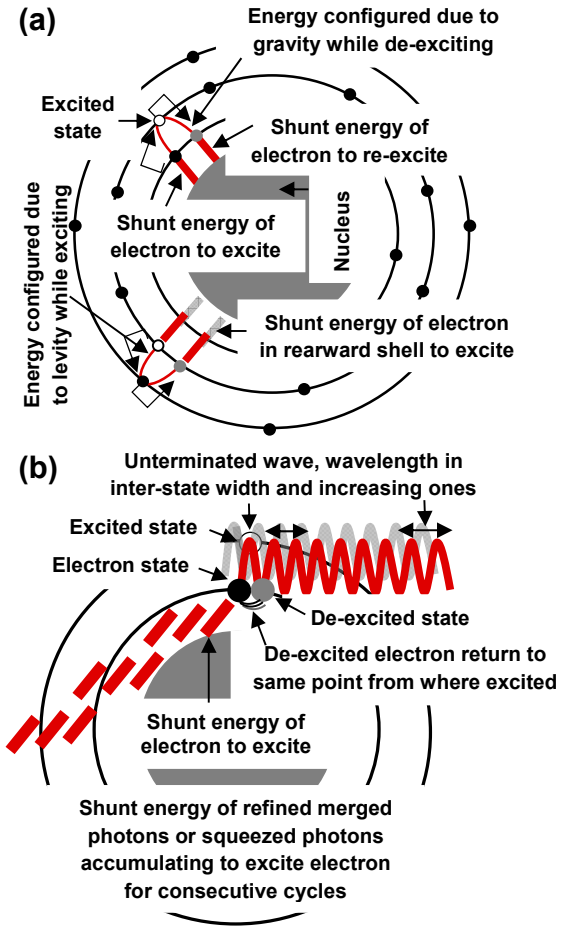


**Figure 4:** *(a) Excitation and de-excitation of electron in silicon atom and (b) repeated process of excitation and de-excitation of same electron where photon is increasing wavelength with respect to propagation distance and absorption of shunt energy to re-excite on completion of each cycle.*

Bohr proposed that electrons move around the nucleus in allocated orbits where they have fixed energy as long as atom is in ground state. The regulation of excitation in suitable atoms depends on the entering shunt energy. When an electron goes to excited state, the gap of entering energy (shunt level) is automatically formed as filled shell also become unfilled. Those entered energies, each in shunt level of electron, are utilized only to excite electrons at targets. This makes an atom to perform like magician due to disturbed electron but at the same time maintaining the energy conserved. While exciting, an electron is reaching towards relaxation, while de-exciting it is moving towards ground state. In this scenario, energy configured along the trajectory at left-side (while exciting an electron under steady-state behavior) is due to levity (negative gravity or anti-gravity) and energy configured along the trajectory at right-side (while de-exciting an electron under steady-state behavior) is due to gravity and both together along with energy configured due to inertia of that electron translate the photon shape-like Gaussian distribution. 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. Sir Isaac Newton explained the gravity in Newtonian Physics. There is no concept of anti-gravity in Theory of General Relativity as explained by Sir Albert Einstein.

In Figure 5 (a), atomic configuration of argon atom is shown where absorbed energy is due to photons characteristic current and not due to merged photons (squeezed ones) as they are rarely propagated into inert gas atom due to no vacant position of electron in their electronic gauge. The capability to absorb heat energy from surrounding is related to emptiness of valence band of an atom, which is not in the case of inert gas atoms. Helium atoms may absorb heat energy where merged photons (or squeezed ones) own wavelengths close to photons characteristic current. Nevertheless, split of atoms switch the field of photonic current into increasing wavelength of photons by in-situ

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employing their intrinsically made gap i.e. electron streams and nucleus as discussed elsewhere [24]. The phenomenon can be revealed in Figure 5 (b) where photons characteristic current break argon atoms, on propagating into band gap, thus, create gap, through which photons switch into increasing wavelength– to X-rays, to ultraviolet, to visible spectrum and till collapsing the energy into merged photons (or squeezed ones).

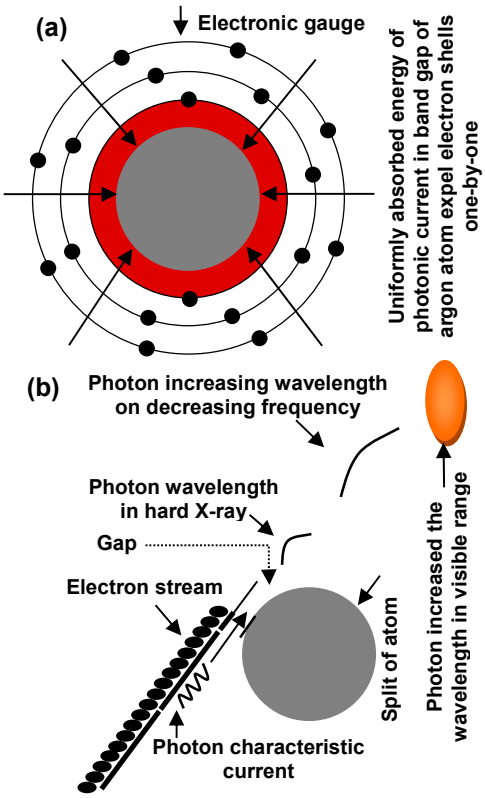


**Figure 5:** *(a) Band gap of argon atom absorbed energy of photonic current and (b) split into electron streams and nucleus where created gap switched wavelength of photons characteristic current into the increased ones.*

When a certain designed material is introduced to deal photonic current, for example, connecting tungsten filament of bulb between so-called negative terminal (wire where photonic current is propagated) and positive terminal (where surplus photonic current is available) result into light, mainly, as the coil setup is under maintained vacuum, and in the case of open air setup, so-called electric heater where photonic current is mainly converted into heat energy. The same is the case in all household appliances (LCD, tube light, TV, Radio, microwave oven, etc.) and according to built-in features of the certain appliance, different utilization of photonic current is possible. In the case of silicon solar panels and similar kinds of gadgets, utilization of the inverters only modify those photons into viable photons characteristic current so that enabling their effective propagation in randomly distributed wires of the home. When a device breakup, the propagation of photonic current is also halted where positive terminal is no longer remained effective and it is involved to utilize excess photonic current into next appliance connected in series or to propagate back to grid.

An electron has mass and it is diffused on deformation or stretching of certain nature atoms. In the case of photon, it doesn't have mass and it involves only discrete energy. In this context, overt photons neither diffused nor impinged and they even don't travel to strike, they either propagate or their energy is being absorbed by the coordinated (or interacted) matter/medium. Thus, under certain amendment overt photons alter into merged photons or squeezed photons. Consequently, they are phonons under certain coordination or interaction where frictions involve. Thus, merged photons (or squeezed ones) are heat energy –phonons. A photon having certain wavelength when coordinates to certain medium evolve into shape depending on the characteristic of matter in that medium. The nature of coordinated photon itself signified as its energy reveals different behavior; bounce back, propagate, transmit, absorb, evolve into the shape of that matter, reabsorption, etc. Photons having controlled wavelength in visible range enable resolving the image down to 0.2 mm –a magnification that human eye can see. Photons having controlled 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

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devices manipulate the image on screening (copying) reflected back photons to an object.

When it is said that an electron is spoiled it doesn't mean that that atom is ionized but it means that there is no more elastically-driven behavior left for that electron and that atom enters in the zone where electron is executing plastically-driven behavior, thus, that atom either deformed or stretched. When atom behaves like an atom having certain nature, it is a powerful device functioning like sun but at atomic level, when a certain atom stretched/deformed, depending on rate of diffusing electron states and number of electrons, different application may emerge, for example, propagation of photons wavelengths in hard X-rays where smooth element of electronic structure is made. In the case of diffusing electron states non-orientationally, electronic structures of atom are viable for various catalytic roles and last but not least when an atom erodes it may still be useful for certain application and needs to be explored. This explanation is eligible for atoms having eligibility to stretch or deform.

In various 'tiny grains carbon thin films' their field emission application as well as display panel applications are due to forming of smooth elements of tiny grains under the certain arrangements as discussed elsewhere [21]. In very small size of the cluster, the most of the atoms shape their structure in two-dimensional lattice, they stretch on diffusing electron states orientationally and propagating photons wavelength in hard X-rays modify electronic structure into smooth elements as discussed such phenomena, elsewhere [21, 22]. Those tiny grains of carbon thin films modified electronic structures into smooth elements are the source of photon field emission and display panel applications (not electron field emission). As photonic current propagates inside inter-spacing distance of smooth elements formed by tiny grains under certain modifications, the wavelength of photons characteristic current reach in the range of X-rays on termination of those channels, thus, they are utilized straight-forward for photon field emission or display panels application. 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 of the emitted fields. 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 in disordered structure is non-uniform. More heat is resulted in structures where atoms are randomly distributed as photons characteristic current dissipate within such structure, they mingled to each other, crossing, overlapping, thus, raise the temperature (heat energy) of lattice. Thus, they again transform into merged/squeezed photons and begin as source of exciting electrons of suitable atoms, thus, repeated cycles of generating photons *via* electron-dynamics is observed and conversion into merged photons may further distort the disordered lattice. Similarly, when photons of different coordinated wavelengths disrupt medium, they dissipate heat energy in the form of merged photons. When interactions of photons to matter are at greater energy, heat is dissipated in greater extent as well. Matter assigns different roles to photons on interaction, converting 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 on interacting to photons wavelength in X-rays. Photons varying wavelength is a cycle of energy where in some cases they work in the form of heat energy (merged photons) and enable the excitations of electrons in atoms of electronic transitions and on de-excitations of those electrons and repetition of the phenomenon results in generating photons characteristic current, which propagate in suitable wires, thus, working as a photonic (photo) current. In some cases, photons having characteristic of current are utilized to break the matter where atoms do not possess phenomenon of electronic transitions as in the case of inert

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gas atoms and eject electron streams, thus, they are utilized to deform or stretch atoms having phenomenon of electronic transitions.

The set modalities of all sorts of photons depend on the origin of their generation establishing roles set by the manufacturer or expert while coordinating characteristics matters. In this context, structural design is crucial in targeting the specific application of certain material and many studies are now targeting and exploring structure either standalone or in relation to other fields of science [28-37]. As discussed, uniform photon couplings take place in materials evolved in one-dimensional or two-dimensional structure [23, 26] and non-uniform photon couplings take place in materials evolved in three-dimensional structures [26]. To measure temperature of such structures in various materials having selective size and medium is the integral part to understand science of different behaviors. Some of the studies shed light on that [38-40].

On moving optical tweezers in real-time control system, tunable arbitrary geometries of cold neutral atoms for quantum engineering are prepared [41] and regular arrays of individual controlled cold atoms as well are prepared [42]. On one side the scope of inert gases is declining, as declared those are not the ones forming fourth state of matter known as plasma and only give electron streams and photons while splitting under the application of photonic current, on the other side, these referred studies [41, 42] are opening the new avenues of research as well. A recent study explained the role of van der Waals interactions in the case of isolated atom [43] and they arise from induced dipoles, which can be attained when fluctuations of charge density are in wavelike nature [44]. As discussed in several investigations that structural motifs are owing to dynamics that develop under localized conditions of the processes [16-24] and under the virtue of heat energy, photons of certain wavelength and then photons characteristic current, thus, to explain them prior to/along with dynamics and structural motifs is in scientific spirit. They are at forefront in design of any sort of material having certain application and without the involvement of photons (heat energy, current and light) it is not possible to design even ordinary featured structure along with interplay of the properties. All that glitters need not be Au but TiN or ZrN as well [45]. However, all elements and compounds glitter where atoms execute electronic transitions, and what is needed is to attain shunt energy to excite electron under controlled dynamics. 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 is to determine shunt energy to excite an electron of atoms with respect to normal living temperature. As long as atoms of electronic transitions are at ground state their electrons remain confined and availability in the form of gas density is not understandable. In the case of Drude model that large number of electrons in metals is as electron gas, freely moving in metal, and become the cause of positive charge. In a case we consider their source outside then they are contaminants and should not be the case of an atom as it is the purest form of the matter, then how an inactive matter diffused inside those atoms, is again not understandable. The oscillation of that electron gas is called plasma oscillation and quanta of this charge density oscillation are called plasmons. In fact, heat energy of suitable merged photons transferred to band gaps of atoms and is referred to localized heating of atoms at which electrons excite. Our recent investigations [46] show that besides characteristics photons, a field force either due to levitational behavior or due to gravitational behavior or due to mixed behavior also involve bringing various modification of the evolved structure within the same material as in the case of carbon atoms where revealed fullerene, lonsdaleite, diamond and graphene phases, in addition to gaseous state and graphite state. Again, in ‘tiny grains carbon thin films’ both Raman spectroscopy and energy loss spectroscopy validate the origin of lonsdaleite, diamond and graphene phases, in addition to graphite

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structure, graphite structure formed smooth elements and amorphous structure [21]. A complete process of involving all electron-dynamics to give out energy configured in shape-like Gaussian distribution is sketched elsewhere [46].

**CONCLUSIONS:**

While exciting electron, energy configured due to levity in its path and while de-exciting electron, energy configured due to gravity in its path where state of electron is changed, rest to motion or motion to rest, energy configured due to inertia is involved. An electron de-excited to keep the energy of atom conserved, thus, obeying law of conservation of 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. Sun is the source of energy to earth, operates matter as per built-in characteristic, humanity is just exploring those characteristics and taking benefits for their efforts.

Photons characteristic current, when it collectively propagate in suitable wire, is called photonic current, such photons generate under natural confinement of electrons having suitable atoms meant for this job. On coordination of photons having various wavelengths to mediums, their energy reshapes into merged photons or squeezed ones called heat energy –due to involvement of friction where energy of wavelength is collapsed. Such heat energy is filtered by atoms of electronic transitions depending on their electronic configurations. In band gap of an atom, the shunt energy excites an electron to higher state. The photon characteristic current is generated as long as atom controls electron-dynamics under given shunt energy in each cycle of electron and connecting of Gaussian distribution shapes configure the shape of energy like wave propagating rearward normal to inter-state electron's gap. An electron owns strong analogy to photon in a manner that inter-state 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 and coordinating merged photons, photonic current or light, for example, heat energy keeps warm many living insects where light and current is not accessible. In solutions of various metallic colloids and quantum dots, on interacting light, split into colors and in ultrananocrystalline and nanocrystalline carbon films photonic current switch into field emission, flat-panel display, etc. In certain materials, the forces of repulsion or attraction is due to levitism or gravitism instead of magnetism and incite Coulomb's Law, when inertia involved due to intrinsic nature of certain atoms, the resulted behavior of an electron deals levitism-inertia-gravitism phenomenon and is responsible of propagating energy –called photon on terminating wave, configuring further nodes and antinodes under confined electron-dynamics, which incites electromagnetic spectrum at increasing wavelength. All suitable atoms of electronic transitions are naturally built-in machines (devices) to filter heat energy of merged photons into the most valuable asset of modern life existing on earth and atoms of silicon lattice are the best choice till to-date. The matter is nothing without energy and all matters operate under its functions reaching from the sun in the form of radiations and light, mainly, and living organisms in the smallest sizes require that energy to survive. An electron is also matter, perhaps, the smallest entity of matter is available on the earth and it is most valuable when it works within natural confinement (domain).

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. Whereas, all types of photons possess energy but not mass, they occupy space to propagate and dissipate energy but not sort of impinging (striking) or exciting/de-exciting entities.

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## Author's biography:

Mubarak Ali graduated from University of the Punjab with B.Sc. (Phys& Maths) in 1996 and M.Sc. Materials Science with distinction at Bahauddin Zakariya University, Multan, Pakistan (1998); thesis work completed at Quaid-i-Azam University Islamabad. He gained Ph.D. in Mechanical Engineering from Universiti Teknologi Malaysia under the award of Malaysian Technical Cooperation Programme (MTCP;2004-07) and postdoc in advanced surface technologies at Istanbul Technical University under the foreign fellowship of The Scientific and Technological Research Council of Turkey (TÜBİTAK; 2010). He completed another postdoc in the field of nanotechnology at Tamkang University Taipei (2013-2014) sponsored by National Science Council now M/o Science and Technology, Taiwan (R.O.C.). Presently, he is working as Assistant Professor on tenure track at COMSATS Institute of Information Technology, Islamabad campus, Pakistan (since May 2008) and prior to that worked as assistant director/deputy director at M/o Science & Technology (Pakistan Council of Renewable Energy Technologies, Islamabad; 2000-2008). He was invited by Institute for Materials Research (IMR), Tohoku University, Japan to deliver scientific talk on growth of synthetic diamond without seeding treatment and synthesis of tantalum carbide. He gave several scientific talks in various countries. His core area of research includes materials science, condensed-matter physics & nanotechnology. He was also offered the merit scholarship (for PhD study) by the Government of Pakistan but he couldn't avail. He is author of several articles published in various periodicals (https://scholar.google.com.pk/citations?hl=en&user=UYjvhDwAAAAJ) and also a book.