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Heat and Photon Energy Phenomena: Dealing with Matter at Atomic and Electronic Level

Mubarak Ali

Department of Physics, COMSATS University Islamabad, Park Road, Islamabad – 45550, Pakistan, E-mail: mubarak74@mail.com, mubarak74@comsats.edu.pk

Abstract: Technology is reaching its climax, but the basic understanding of science in numerous phenomena is still required. A misconception in the use of terms, photon and electron, exists in many ways. In the outer ring of silicon atom, when an electron executes inter-state dynamics for one cycle, generated force and energy establish the relation in the form of 'unit photon'. A 'unit photon' is a subset of an overt photon. An inter-state dynamics of electron for one forward cycle and one reverse cycle generates an overt photon having the least measured length. When an overt photon of suitable length interacts with the side of laterally orientated electron clamped by energy knot in its atom, that photon divides into tits and bits of heat. When that overt photon interacts with the tip of laterally orientated electron by forming an approx. angle of 90º, that photon divides into bits of energy having shape like integral symbols. Electrons of outer ring in silicon atom execute confined inter-state dynamics as per exerting forces along the poles; centre of the atom acts as an origin for both left and right sided electrons when categorizing forced exertions along the east-west poles. But, a lateral-wise length of an electron (at right side or left side to centre of atom) itself signifies the north-south poles. Hence, the available heat energy of an atom is utilized to wrap the shaping force along the tracing trajectories of electrons while inter-state dynamics in their forward and reverse cycles. In inter-state dynamics, an electron of the outer ring first reaches to the 'maximum limit point', where energy of one bit engaged to wrap force shaping along the traced trajectory. From that 'maximum limit point', electron again experiences the forces along the suitable poles to complete second half cycle, where again energy of one bit engaged to wrap force shaping along the traced trajectory. This way, that electron depicts the force and energy of unit photon shaped like 'Gaussian distribution of both

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ends turned'. If the uninterrupted supply of heat energy is available for silicon atom, confined inter-state electron dynamics generates photon having a shape like wave. Inter-state dependent but path-independent forces take over the control of electrons to deal with dynamics nearly in the speed of light. A photon can be in its continuous length if the changing aspect of the electron remains uninterrupted. In a position acquiring electron while executing confined inter-state dynamics, conservative forces function to exert as per their viability. Moment of inertia being dealt with the electron is in the auxiliary manner, which is recalled in each point of its turning. An electron does not make contact with any energy knot that confines the dynamics. Atoms of different elements generate photons of different shapes as per nature of electron dynamics. Atoms change correspondence according to the mechanism of electron dynamics. Here, heat and photon energy explore matter at atomic and electronic levels to describe the base of science.

Keywords: Heat energy; Photons; Fundamental forces; Electron dynamics; Atomic scale phenomenon; Electronic scale phenomenon

1. Introduction

Creation has been benefited by heat and photon energy since its existence. Again, different phenomena such as electrical discharges, etc. have been the subject of study since long. Catching fire in different types of matter and burning of various commodities are the usual phenomena that have been under observation since the existence of life.

Many studies are available in the literature dealing with light and matter interaction, where it is covered largely under a phenomenon, known as surface plasmons. The origin of plasmons has been explored in some early published reports [1-4]. A plasmon is a quantum of plasma oscillating and representing the collective oscillations of the free electron gas density – a general definition extracted from the literature.

The interaction of light (photon) and matter is recognized in the form of various terminologies, such as phonon, excitons and plasmons. A reviewed study discussed light and matter interaction, considering the properties of polariton modes in two-dimensional materials and applications in a suitable range of spectrum [5]. The concept

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of excitons (electron-hole pairs) was first proposed by Frenkel [6]. It deals with the excited state of an atom in a lattice, travelling in particle-like fashion without the net transfer of charge. Excitons can be formed due to the absorption of photon by a semiconductor (quantum dot) [7]; a phonon is a collective excitation in a periodic and elastic arrangement of atoms or molecules in condensed matter.

A vast number of studies deal with different sorts of developing processes involving tiny-sized particles. 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 the fabrication of new materials of controlled features [9]. The likely development of nanoparticle technology is an obvious long-term benefit [10]. With the success of assembling colloidal matter in a useful structure, the atoms and molecules will be treated as materials in near future [11]. The investigation of the dynamics of an individual nanoparticle should be taken as a prime concern prior to sound deliberations [12]. A good understanding on the surface features of nanoparticles will lead to the development of high order materials [13]. Tiny-sized clusters possess molecule-shaped electronic and non-face centered cubic geometric structures [14]. Chemical properties of gold nanoparticles change with size [15]. The development process of various tiny-sized and large-sized particles under varying concentration of gold precursor was studied in pulse-based electron-photon-solution interface process [16]. It has been discussed that localized dynamics of the process is one of the causes that contributes in developing the structure of tiny-sized particles for gold [16-20], silver [20] and carbon [21, 22]. The study of tiny-shaped particle dealing with elongation of atoms of arrays was also studied [23]. When the stretching of clamping energy knots to electrons in an atom is uni-directionally based, it is related to an elongated behavior of that atom. However, under non-unidirectional stretching of clamping energy knots to electrons in an atom, it is related to its deformation behavior [24].

Sir Isaac Newton explained gravity, which is called Newtonian Physics. There is no such concept regarding the opposite of 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 if atom is in ground state. Therefore, a

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behavior of levitational force (exerting at electron level) in atoms of various elements remains beyond understanding, and the study of band gap, valence band and conduction band prevails in all related phenomena. Here, the configuration of atomic structure is remained associated with the study of orbits and shells, and quanta in recent studies. However, these conventional insights add a bit towards the understanding of structures of atoms in a noteworthy way as discussed in a separate study [25]. Thus, conventional insights kept the researchers away from thinking and considering force and energy relationship for atoms. A different force and energy relationship in gaseous atoms and solid atoms has been explored [25]. Huge efforts were made in exploring technological advances and breakthroughs, but the required efforts were not put forth regarding the basic and fundamental sciences. Fundamental aspects of structure evolutions in atoms of all those elements executing confined inter-state electron dynamics were studied in a separate study [26]. Again, fundamental aspects of binding different state carbon atoms have been explored [27].

Interactions of photon with clamped energy knot electron in a hypothesized solid atom are discussed in different aspects. A conversion of heat energy into photon energy by considering the silicon atom as a model system is clarified. The forces of poles exerting to electrons of outer ring in silicon atom are disclosed. The generation of photon in the shape other than a wave is also discussed. An analogy in photon and electron is singled out.

2. Results and Discussion

Under excessive population, propagation of photons (having characteristics of current) through inter-state electron gaps of the flowing inert gas atoms split them into electron streams [24]; splitting electrons carrying forcing energy of chasing photons impinge on solid atom to further elongate it or deform it. So, solid atoms do not retain their original state behavior on deformation under impinging electrons from the external source. Solid atoms can also deform under the process of synergy, where interaction of the medium plays a vital role [16]; atoms deal with different sorts of interactions in the medium. Such deformation behaviors of atoms of tiny-sized particles have been observed in colloids of

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gold, silver and their binary composition [16-20]. Deformation behavior of atoms is also discussed in tiny grain carbon films [21, 22]. Again, a uniform elongation behavior of atoms of arrays was discussed, where tiny-shaped particle of gold was taken as the model system [23].

Photonic current, also known as electric or electronic current, is stated when photons of wavelength propagate through a wire ideally in the width of inter-state electron gap of silicon atom in outer ring [24]; photonic current does not infer the flow of any electron. However, electrons of certain atoms can be the source of transforming heat energy into photon energy under their confined inter-state dynamics. Therefore, electrons are the source of generating photonic current. Hence, a photonic current is related to force, energy and the medium of its propagation [24].

For the solid atoms, the force and energy relationship shows a direct behavior, which is not the case in gaseous atoms [25]. Structural evolutions in atoms of different elements occupy three different levels of ground points. Those ground points of atoms belonging to different elements are discussed, where conservative forces are involved to execute their confined inter-state electron dynamics [26]. A structure in different states of carbon atoms is also discussed, where electron dynamics engages both the non-conservative and partially conservative forces depending on the behavior of atomic state [27].

These studies enlighten that energy and force together shape the photon. So, the resulting energy of the generated photon is also to be conserved. However, the absorbed heat energy by the atom can be in the conserved manner. An inter-state gap of electron dynamics (dealing with the actions of conservative forces) can determine the conserved nature of energy. The absorbed heat energy by the atom is supposed to act as the element of energy for generating a photon under the execution of its confined inter-state electron dynamics. Hence, this generated force and energy is entitled to transport from generation to consumption through a certain medium, where it is treated as photonic current. The word propagation appears to be suitable when photons propagate through the inter-state electron gaps of atoms, whereas the word travelling appears to be suitable when photons travel in the air medium. Thus, the smallest entity

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of a photon, which deals with the force and energy relationship together in travelling or propagating mode, can be referred to as a ‘unit photon’.

2.1 Heat energy; atomic and electronic scale phenomena

A photon, having characteristics of current in any length, propagates through inter-state electron gaps of suitable atoms while maintaining the required width and distance (length) of a gap for that photon [24]. When traveling photons of less forcing energy interact with water, they raise the temperature of the water to a less degree of warmness. On the other hand, when traveling photons of more forcing energy interact with water, they raise the temperature of the water to a greater degree of warmness. A long length (overt) photon carries more energy as compared to the energy of a ‘unit photon’. It results in the heating of medium under the different sorts of photons’ interaction, where the ‘element of force’ is gradually diminished while dividing their positions of nodes and antinodes. The heat energy is absorbed in a medium like that of water increasing its temperature. The term ‘partially propagation’ can be employed here as the broken pieces of a ‘unit photon’ are not fully static, where the inertial property of the electron in auxiliary manner is still present. Thus, broken pieces of different photons dissipate their heat while propagating and travelling through inter-state electron gaps of atoms of contaminated water consistently and inconsistently. In some regions of that water, the medium also conducts the current in addition to dissipating heat energy. Due to this phenomenon, a body often faces the electric shock, which is due to photonic current instead of electric (electronic) current.

A single cycle of electron dynamics of silicon atom results in the generation of force and energy, which is termed as a ‘unit photon’. Thus, a ‘unit photon’ possesses the least length of conserved force and energy, where it has the shape like ‘Gaussian distribution of both ends turned upwardly’ as shown in (1) of Figure 1; an inverted unit photon where it has shape like ‘Gaussian distribution of both ends turned downwardly’ is also shown. In suitable configuration, interaction of a ‘unit photon’ with electron results in its division into two equal parts (shaped like integral symbol and shaped like opposite integral symbol), which is related to one bit of energy in both cases as shown in (2) and (3) of

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Figure 1 respectively. The heat energy is generated when a photon of length, even in the length of a ‘unit photon’, is divided by the interaction of electron. When a ‘unit photon’ interacts with suitable angle to electron clamped by energy knot in hypothesized solid atom despite its division into two, a merged energy is resulted as shown in (4) of Figure 1. A merged energy of unit photon is a bunch of folded energy. When a ‘unit photon’ interacts with the side of electron clamped by energy knot in atom, it divides into several parts. Because of dedicated interaction with electron, a ‘unit photon’ divides into two parts, which can further sub-divide. Nevertheless, in the divided unit photon, where it is converted into tits and bits, it yet keeps a minute ‘element of force’ due to the turning positions of electron. In case where the arms of unit photon neither folded nor divided into two parts, the unit photon is divided into several parts as shown in (5) of Figure 1. They purely relate to tits and bits of heat energy.

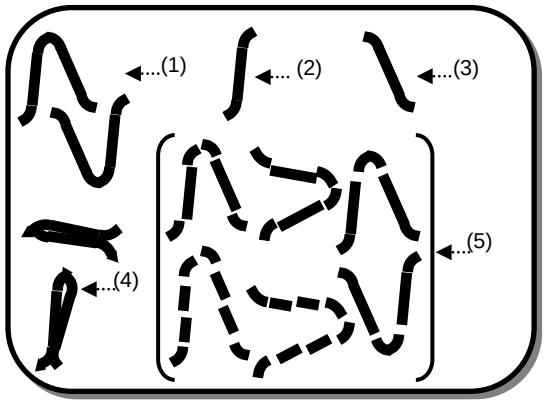

Figure 1: *(1) The smallest entity of force and energy that is shaped like ‘Gaussian distribution of both ends turned’ is called a ‘unit photon’, the division of the unit photon is shaped like (2) integral symbol and (3) opposite integral symbol, (4) merged energy of unit photon and (5) the division of unit photon into tits and bits of heat energy*

The length of photon depends on the number of cycles carried out by inter-state electron dynamics. If the inter-state changing aspect of electron remained uninterrupted, the generation of photon also remains in continuous length. A force and energy relationship that has shape like a wave is shown in (1) of Figure 2. This is called overt photon, and it is generated by three cycles of electron in forward and reverse directions.

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When a photon interacts with the side of electron clamped by energy knot in hypothesized atom under suitable incidence, it is folded by the impact of absorption. This is shown in (2) of Figure 2 (b). So, that overt photon converted into tits and bits of heat energy as shown in (3) of Figure 2 (b). Here, the element of force in pieces of tits and bits is almost diminished. The different pieces of that overt photon are now related to heat energy. By forming an approx. angle of 90°, that photon interacts with the tip of laterally orientated electron clamped by energy knot in its hypothesized solid atom; and it mainly divides into the bits of energy. This is shown in (4) of Figure 2 (b). That overt photon converted into integral symbols by dividing at the points of nodes and antinodes. This is shown in (5) of Figure 2 (b), where single photon was converted into several pieces having the shape like integral symbols. A 'bit energy' is partially related to 'heat energy' as the force is still there to keep shaping it.

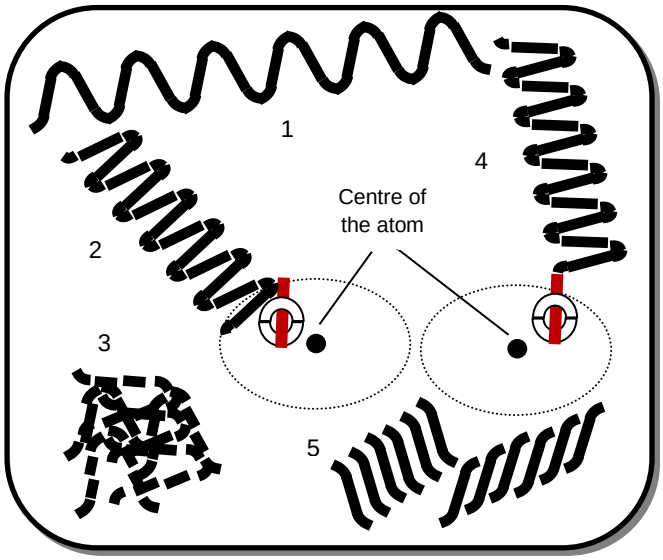

Figure 2: *(1) An overt photon generated by three cycles of electron dynamics in forward direction and reverse direction, (2) interaction of overt photon with the side of laterally orientated clamped energy knot electron of a hypothesized solid atom, (3) tits and bits of heat energy resulted when that photon interacted with the side of laterally orientated clamped energy knot electron of a hypothesized solid atom, (4) interaction of overt photon with the tip of laterally orientated clamped energy knot electron of a hypothesized solid atom and (5) bits of energy shaped like integral symbols resulted when photon interacted with the tip of laterally orientated clamped energy knot electron of a hypothesized solid atom*

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As discussed for Figure 1, one bit of energy can further divide into tits and bits of heat. It can be deduced that an overt photon is a combination of several unit photons, where division under miscellaneous interactions converted it into tits and bits of heat energy. By combining two ‘unit photons’, a least measured length overt photon is framed. Thus, an overt photon involves a minimum of two nodes and two antinodes. The connection of heat energy in two bits at the centre of ‘maximum limit point’ of the electron executing confined inter-state dynamics results in the generation of a ‘unit photon’ that is shaped like ‘Gaussian distribution of both ends turned’.

2.2 Photon energy; atomic and electronic scale phenomena

In atoms of semi-solids states, electrons deal with zone of impartial force at 0° orientation along the north-pole and south-pole [25]. So in the semi-solid atoms, when the electrons (of outer ring) form orientation of 0° along the normal lines drawn from their centers, they deal with impartial behavior of forces along the north and south poles. It means they are equal in force exerting along their opposite-sided tips. Now, electrons of outer ring in silicon atom also have their half-lengths above the middle of clamped energy knot and half-lengths below the middle of clamped energy knots. It means that those electrons also deal with equal force along east and west poles. In this way, those electrons infer the neutral behavior of their states. So, supply of heat energy triggers inter-state dynamics of electrons of outer ring in silicon atom, where forces of all four poles of the electrons become conserved. This is not the case with electrons of inner rings of silicon atoms because they are not exposed to conserve behavior of forces.

In Figure 3 (a), a top left-sided electron of silicon atom is considered to execute inter-state dynamics. To execute inter-state dynamics, electron involves the force first to exert along its relevant poles. Forces of relevant poles exerted over that electron as it started the motion against the recalled ‘moment of inertia’, which is in the auxiliary manner. That electron ended the motion also against the recalled ‘moment of inertia’, which is again in the auxiliary manner. Energy of one bit is engaged along the traced trajectory. The engagement of energy is in the form of wrapping force shaping along the

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tracing trajectory of that electron. In this context, each electron of the outer ring in silicon atom undertakes confined inter-state dynamics as per exerting forces along the relevant poles. However, electron of the colored-state in outer ring as shown in Figure 3 (a) is only considered to execute dynamics within inter-state gap. That electron experiences force of relevant poles in a conserved manner, where one bit energy (from the front side) is engaged to warp force shaping along the traced trajectory. That electron is lifted from the occupied state without touching its clamped energy knot. Electrons of zeroth ring and first ring of silicon atom do not entertain the exertion of forces because they are not influenced in the required limit. Hence, only the electrons (four) of outer ring execute confined inter-state dynamics in their cycles of forward and reverse directions.

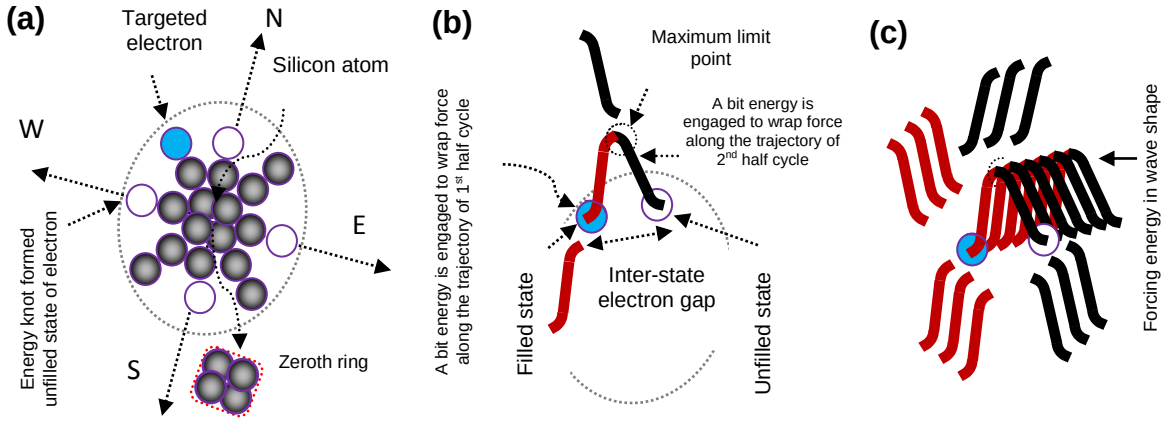

Figure 3: *(a) silicon atom of neutral state (targeted) electron, (b) confined inter-state electron dynamics of silicon atom in forward direction cycle and (c) generation of overt photon (having six 'unit photons' of twelve bits of energy) by three cycles of inter-state electron dynamics in forward and reverse directions*

In Figure 3 (b), the transformation of heat energy into unit photon energy is shown. At the 'maximum limit point' of a lifted electron, one bit energy is engaged along the traced trajectory of electron. This energy of one bit wraps the force shaping along the tracing trajectory of electron in the first half cycle. The trajectory of electron in first half cycle is up to the central point of 'maximum limit point' where due to the turning of forces recalled 'moment of inertia' ends in the auxiliary manner. In the second half cycle, another energy of one bit is engaged along the traced trajectory of electron to wrap the shaping force. The trajectory of electron in second half cycle is up to the last

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point of cycle, where recalled ‘moment of inertia’ also ends in the auxiliary manner due to the turning of forces. Thus, a ‘unit photon’ is due to force and energy that is generated from one complete forward direction cycle of inter-state electron dynamics. That electron recalls ‘moment of inertia’ in each point of turning, which is in the auxiliary manner. A complete cycle of confined inter-state dynamics of electron in forward direction is shown in Figure 3 (b); a ‘maximum limit point’ of electron is also shown in Figure 3 (b).

The engaged energy of electron changes its state, i.e., rest to motion or motion to rest, and is mainly due to the exerting force in its recalled ‘moment of inertia’, which is in the auxiliary manner. The engaged energy along the traced trajectory of electron was due to exerting force along the side and tip. The inter-state dynamics of semi-solid electron on completing six cycles (three in the forward direction and three in the reverse direction) shaped the energy of twelve bits like a wave. Here, six of them have the shape like the opposite integral symbol and six of them have a shape like straight integral symbol shown in Figure 3 (c). As shown in Figure 3 (c) on just occupying the new state while executing the forward direction cycle, that electron does not stay in it, but is ready to execute dynamics for reverse direction cycle. In the reverse direction cycle, it starts experiencing the exertion of forces for the opposite tip without making any contact with that energy knot. Under uninterrupted forward and reverse direction cycles, the execution of confined inter-state dynamics of electron generates the forcing energy in connecting ‘unit photons’. The connecting shapes of ‘unit photons’ are just like that of continuous sketching on a piece of paper along with the pulling of paper simultaneously without picking pencil from the initial position.

In silicon atom, the energy of two bits is engaged in the forward direction cycle, and the energy of two bits is also engaged in the reverse direction cycle. Due to the double length of this resultant photon, it is termed as the overt photon having the least measured length. When the generating forcing energy is interrupted at any stage, a photon of new forcing energy starts. The same process takes place in many atoms resulting in the generation of photons under some additional modifications required for a silicon solar cell. Each cycle of confined inter-state electron dynamics in silicon atom

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generates forcing energy of a ‘unit photon’ that is shaped like ‘Gaussian distribution of both ends turned’. Here, the energy of two bits is engaged along the traced trajectory, which is utilized to wrap the shaped force. A continuous supply of heat energy to electron will increase the length of forcing energy. Hence, it results in the increased length of the overt photon.

The heat energy of tits and bits is engaged along the traced trajectory to form one bit energy for first half cycle, and the same is the case in the second half cycle. So, force and energy of a ‘unit photon’ generates in a cycle of forward or reverse direction. The overall shape of the engaged energy along the traced trajectory for the first half cycle dynamics of electron is like straight integral symbol (∫). The overall shape of the engaged energy along the traced trajectory for the second half cycle dynamics of electron is like opposite integral symbol (ɻ). Thus, the engaged energy in the two shapes of integral symbols along the traced trajectory of electron dynamics is in opposite form, and so is the case with force enclosed with it. However, two shapes of integral symbols remained connected at the centre of ‘maximum limit point’ for each forward or reverse direction cycle resulting in the overall shape of force and energy shaped like ‘Gaussian distribution of both ends turned’ shown in Figure 4. The force and energy relationship accommodates along the trajectory traced by the dynamics of targeted electron while exerting forces along the relevant poles in the cycle of forward direction is shown in Figure 4 (a); (1) to (6). The force and energy relationship accommodates along the trajectory traced by the dynamics of targeted electron, while exerting forces along the relevant poles in the cycle of reverse direction is shown in Figure 4 (b); (6) to (1).

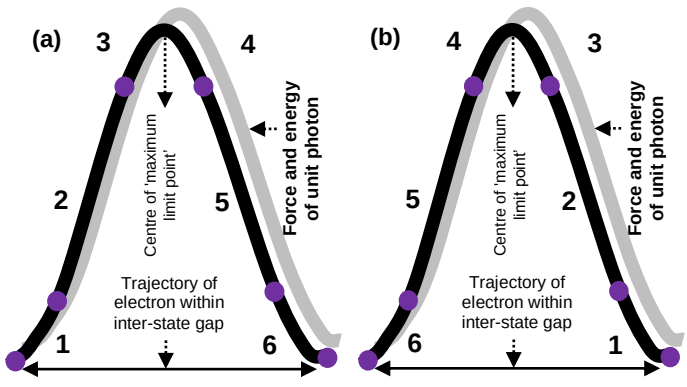

Figure 4: *Different portions of a ‘unit photon’ generated under confined inter-state electron dynamics of silicon atom for (a) forward direction cycle and (b) reverse direction cycle – the dark front side shows trajectory of electron and the grey rear side shows force and energy of a ‘unit photon’*

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The changing aspect of electron of each outer filled state remains within inter-state gap, where it continues to generate the conserved force and energy relation till interruption. So, for a silicon atom in the lattice, forces of different poles remain conserved in each inter-state gap of electron belonging to outer ring. When all four electrons of the outer ring executed confined inter-state dynamics under the availability of heat energy of their silicon atom, they resulted in the generation of photon energy of identical nature.

The positions of electron dealing with moment of inertia in the auxiliary manner are responsible to force the energy from one point to another. Therefore, in each position of the turning electron, a recalled moment of inertia in the auxiliary manner is involved. Thus, the exerting forces to different poles of electrons under their confined inter-state dynamics remained path-independent. However, exerting forces keep electrons of outer ring confined within the available gap between their states. Electrons do not indicate any other process regarding their re-gaining of states. The motion to rest and rest to motion of the electron at the centre of 'maximum limit point' is due to the diminishing of forcing exertion at that point, but it is turning toward unfilled state due to the appearance of forcing exertion at that point. By recalling the 'moment of inertia' of electron in the auxiliary manner, it deals with forces of two poles. Forces act together but from the opposite sides, and it causes that electron to turn. Thus, there is a coupling in terms of generation of force and energy of first half cycle dynamics and second half cycle dynamics. The recalled 'moment of inertia' in the auxiliary manner is yet legible during steady state behavior of the electron. Hence, a path of electron under inter-state dynamics in the steady state behavior is like '/' or '\'.

Each electron of outer ring draws trajectory of inter-state dynamics in its associated quadrant of atom shown in Figure 5. In forward direction cycle of electron dynamics, the electron leaves the state from its rear side. In the reverse direction cycle of electron dynamics, the electron leaves the state from its front side. The dynamics of top left-sided electron and top right-sided electron in their either cycle are different. In forward and reverse direction cycles, forces involved in the dynamics of electron to turn at different positions are shown symbolically in Figure 5 (a-d): (a) top left-sided electron,

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(b) top right-sided electron, (c) bottom left-sided electron and (d) bottom right-sided electron. In Figure 5, the red arrow is related to forward direction cycle of electron dynamics, but the black arrow is related to reverse direction cycle of electron dynamics.

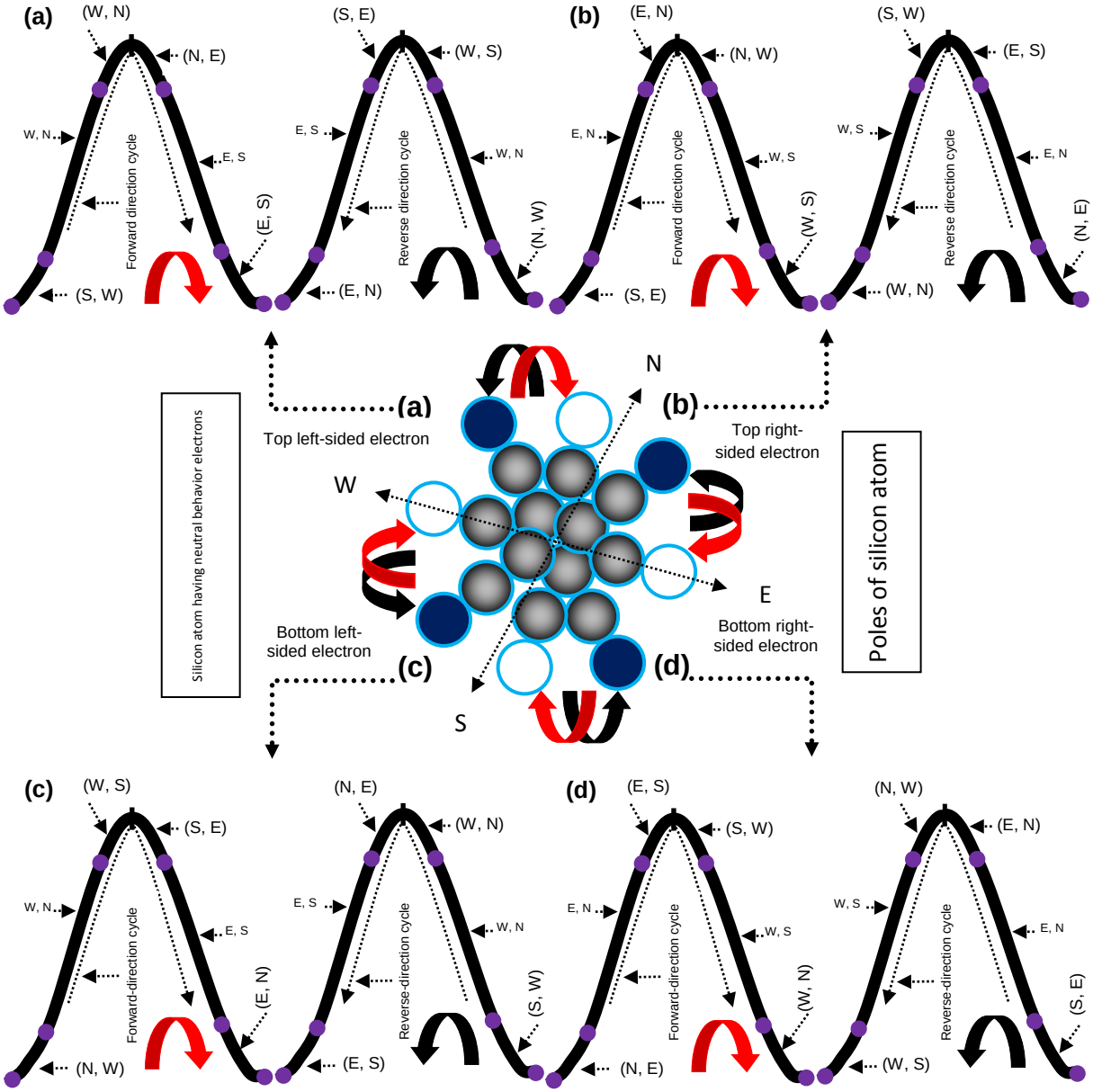

Figure 5: *Electrons (blue color) experienced forces to their different poles while executing confined inter-state dynamics in forward direction cycle (denoted by red colored turning symbol), and in reverse direction cycle (denoted by black colored turning symbol) are shown in their respective quadrants (a-d); forces of E (east-pole), W (west-pole), N (north-pole) and S (south-pole) exerting along each electron of silicon atom (in outer ring) are labelled generating force and energy relationship of a 'unit photon'*

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In semi-solid atoms, electrons deal with half-length above and half-length below to their clamped energy knots [25]. These electrons do not have contact with their clamped energy knots under neutral behaviour, but inner electrons (electrons belonging to zeroth ring and first ring) do not entertain the forces in a desirable exertion. Hence in silicon atom, a force was mechanically exerted along the relevant poles of electrons belonging to outer ring. Force treats electrons of outer ring only to execute dynamics, and they are also orientated at zero degree along the north and south poles. Changing aspects of an electron in outer ring of silicon atom remain between gap of filled and unfilled state. This way, a forced exertion along the poles of that electron remained in the conservative mode.

In the solar panel, each silicon cell connected in the series adds up to the generating number of photons under a suitable fabrication procedure. The heat dissipation at the rear side surface of solar cell is controlled by using the silver paste or through other suitable means. The generating photons are collected from the suitable sides in the laminated panels. As observed in solar panel, it can generate the maximum power at suitable angle. In this context, electrons of more atoms experience forces along the relevant poles resulting in the generation of photons under uninterrupted cycles. The cycles of confined inter-state electron dynamics of silicon atoms remain uninterrupted for a longer period, where on titling silicon solar panel at suitable orientation with respect to base results in varying the efficiency which is quite effective in the peak hours of the sunlight. Depositing a few layered silicon atoms at a suitable substrate may solve the purpose of availing themselves of high-power outcome at the place of depositing several microns' thick layer. Employing various dopants and diffusing elements in the fabrication process of silicon solar cells work to attain effectiveness of electrons to execute dynamics in their atoms.

When an overt photon interacts with suitable electron of hypothesized solid atom from the tip side by forming an approx. angle of 90°, it is mainly converted into bits of energy, where each unit photon is divided into energy of two bits. These bits of energy surround atoms of silicon lattice on entering the laminated glass. These can process again for the typical nature of heat energy. However, when that overt photon interacts

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with the side of embedded electron, that photon directly converts into tits and bits of heat energy. When featured photons interacted with the tips of laterally orientated electrons of elongated atom by forming a suitable angle, they printed the pattern by reverting the element of their force [28]; in particles of multi-dimensional shapes, photons print their effects in the form of dots and in particles of one-dimensional shapes, photons print their effects in the form of lines.

A propagating photon through the inter-state electron gaps is dealing with its forcing energy. There are other shapes of photons, too. In atoms of those elements, where four conservative forces are involved under certain condition of their processing, they transform heat energy into photon energy shaped like a wave. In the atoms of those elements, where three conservative forces are involved, they transform heat energy into photon energy shaped like connected integral symbols. In the atoms of those elements, where two conservative forces are involved, they transform heat energy into photon energy shaped like connected tick symbols. In the atoms of those elements, where nearly two conservative forces are involved in such a manner that dynamics of electron at target does not cross entire north-pole of its atom, they transform heat energy into photon energy shaped like connected '*L*' symbols under continuous cycles. So, there are not only photons shaped like a wave, but also shaped like connected integral symbols, connected tick symbols and connected '*L*' symbols shown in Figure 6 (a-c). In generating photon by confined inter-state electron dynamics, both the elements of force and energy are shown in Figure 6 (d).

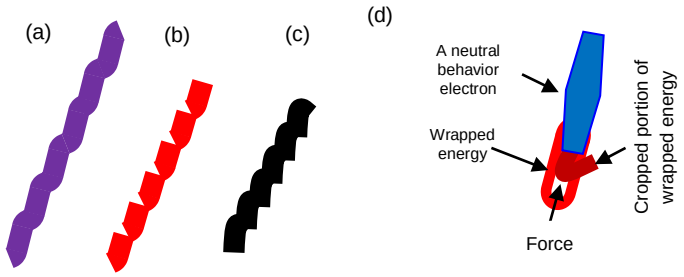

Figure 6: *An overt photon of connected (a) integral symbols, (b) tick symbols, (c) L-like symbols and (d) electron shaping force and energy along the trajectory of its confined dynamics*

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2.3 General discussion

Distribution of heat energy to disordered structure takes place in non-uniform manner. More heat gets generated in structure, where atoms are randomly distributed as photons having characteristics of current are divided into tits and bits of heat energy rather than propagating through inter-state electron gaps of embedded atoms in the ordered lattice. The collapsed photons in tits and bits of heat energy can again be used in wrapping the forces shaping along the tracing trajectories of electrons. When photons of different energy disrupt the medium (overt photons), they transform to dissipate heat energy in the form of tits and bits. Their conversion from one form of energy to another depends on the structural motifs and individual behavior of comprised atoms.

In Bragg's diffraction, amorphous materials do not show any specific structure under the interaction of photons having features in X-rays, where energy of photons is mainly converted into heat energy rather than being visualized in the XRD scan. In some cases, photons having characteristics of current are utilized to split the matter like inert gas atoms. The resultant electron streams are utilized to deform or elongate underlying atoms of electron transitions.

The set modalities of all sorts of photons depend on the origin of their generation establishing roles set by the manufacturer dealing with suitable matter. In this context, structural design is crucial in targeting their specific application and many studies are now targeted for exploring structure [29-38]. However, it has been disclosed elsewhere that all structural size and shape for various metallic colloids are owing to a certain level of their controlled force and energy behavior [18]. Nearly the same concept is related to the semi-metallic materials when they are investigated [21, 39].

When electron dynamics is executed for one forward cycle and one reverse cycle in atoms of suitable elements, shapes of generated energies bind atoms [26] instead of working photons shown in Figure 6 (a-c). Due to such forced energy featuring photons, atoms of certain tiny-sized particles are used for nanomedicine applications as in the case of stent application [40]. This is because photons shaped like a wave possess their forced energy having characteristics of current propagating through inter-state electron gaps of atoms. They possess very high power. Here, it is not possible to consider such

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atoms as the candidate for nanomedicine application. Therefore, for many applications including nanomedicine, the requirement of featured photons is forced energy rather than the ones shaped like a wave. For nanomedicine applications, the generated photons by the atoms of nanoparticles can have the shape(s) shown in Figure 6 (a-c). The study expressed the implication of tiny-sized particles comprising certain behavior atoms using them as nanomedicine [40]. The development of particles under predictor packing is studied, where photons shaped like wave used as input source to optimize the process conditions [41]. To measure the temperature of such materials is an integral part in understanding the science of their different behaviours and some of the studies shed light on them, too [42-44]. It is possible to measure temperature of atoms at nanoscale as well as at bulk scale without the involvement of thermocouples and other various gadgets. Thus, it is required to determine the probability of electrons experiencing forces to relevant poles under confined inter-state dynamics.

A recent study explained the role of Van der Waals interactions in isolated atom by considering the induced dipoles [45] which can be attained when fluctuations of charge density are in wave-like nature [46]. Moreover, these studies indicate different uses of electron and photon. Photons do not possess mass; they neither impinge nor stretch. They interact with electrons clamped by energy knots in their atoms in different ways. On interrupting a wave generating at a point of source under confined inter-state electron dynamics of a suitable atom, it results in the release of a long length photon called overt photon. On interacting with appropriate medium under suitable incidence, it gets converted into bits of energy followed by its conversion into tits and bits of heat energy. In the forcing energy of a travelling photon, the element of force transported energy from one point to another. However, energy cannot be forced to impose the force since the force is functioning from a distance. Energy keeps the force to behave impartially in exertion for it.

3. Conclusion

Heat energy supplied to silicon atom wraps force shaping by the tracing trajectory of electron under confined inter-state dynamics. Thus, for a cycle of forward or reverse

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direction of electron, a photon of least measured length in force and energy is generated, which is related to a ‘unit photon’ shaped like ‘Gaussian distribution of both ends turned’. If heat energy is available to silicon atom, confined inter-state electron dynamics can generate photons of continuous lengths.

On the one hand, an atom transforms heat energy into photon energy, where it propagates through suitable inter-state electron gap, or it travels through the air medium. Contrarily, photon energy gets converted into heat energy through interaction with electron of hypothesized solid atom. When a photon interacts with the side of laterally orientated electron clamped by energy knot in its atom, it gets divided into tits and bits under the impact of absorption. At an approx. angle of 90°, when photon interacts with the north-sided tip of laterally orientated electron clamped by energy knot in its atom, it gets divided into bits of energy. Bits of energy further get divided into tits and bits of heat energy. A ‘unit photon’ involves energy of two bits and an overt photon contains energy of several bits. An overt photon involves at least two ‘unit photons’ in the least measured length.

Forces exerted to the electron change its aspects both in forward and reverse cycles but within its inter-state gap. A shaping force in each cycle of electron is covered (shielded) by the available heat energy to preserve the features. This is how a photon is formed. In the inter-state dynamics of electron, both force and energy are generated in conserved manner, where the first force exerting along the poles of an electron shows conserved behavior. Then, energy wrapping to shaping force along the tracing trajectory of an electron shows conserved behavior. During the execution of confined inter-state electron dynamics of silicon atom, the charisma of forces to be conserved enables the charisma of energy to be conserved.

The electron of inter-state dynamics experiences forces along the relevant poles in such a manner that it recalls ‘moment of inertia’ in each point of its turning. However, by nature, the moment of inertia associated with each turning point of electron behaves in the auxiliary manner. During the dynamics, that electron does not make contact with either energy knot. The descriptions of exerting forces along the poles of electrons become related to their own drawn poles in all four quadrants of silicon atom. The

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centre of the silicon atom refers to the origin of electrons positioned on both left and right sides. The electron leaves from the rear side of state while being in the forward direction cycle in all quadrants of silicon atom. Contrarily, the electron leaves from the front side of state while being in the reverse direction cycle. Thus, depending upon the built-in inter-state gap of electron dynamics, atoms of different elements generate photons of different features, where the photons also have shapes other than wave.

A force exerting along the relevant poles of an electron remained only functional in the width of photonic band gap or inter-state electron gap of an atom having fixed ‘maximum limit point’. Before crossing the ‘maximum limit point’, the electron is being examined by the opposite forces to pull it downward. By turning upward, the electron of outer ring gets lifted in a lateral manner. To turn it back, it gets relief from the effect of upward force to join exerting force of adjacent manner. So, in order to turn that electron downward, a force in opposite lateral manner is exerted on it. In fact, forces exerting on the electron under the combined lateral (due to levity as well as gravity) and adjacent orientations are because of their viability available while acquiring the position. So, the speed of electron in inter-state dynamics take over the control and can be thought of near to the speed of light in conservative forces.

In neutral state semi-solid atom, electrons deal with zero degree orientation along the normal lines drawn from their centers, which is not the case in atoms of gaseous and solid states as discussed in reference 25. Thus, a mechanism of generating photon energy (in electron dynamics) indicates again that atomic structures of the elements are different to the given ones. Again, a mechanism of transferring heat energy into photon energy by a silicon atom validates that atoms of different elements possess different shapes.

Now, a photon has a strong analogy to electron in such a manner that the latter forms a photonic band gap (or inter-state gap) enabling the former to propagate through the gap to work as a photonic current. A travelling photon is an entity transporting the energy from one end to the other end through the installed element of force. Clearly, electrons are the entities which possess mass. Electrons impinge on atoms to deal with different modifications. They also experience force to their poles to vary potential energy

and orientation. Heat energy and photon energy are not the ones that impinge or experience force. An electron is basically a matter; it is not related to force and energy.

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Author's biography:

Mubarak Ali graduated from University of the Punjab with BSc (Phys & Maths) in 1996 and MSc Materials Science with distinction from Bahauddin Zakariya University, Multan, Pakistan (1998); his thesis work completed at Quaid-i-Azam University Islamabad. He gained PhD in Mechanical Engineering from the 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 the 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 University Islamabad (previously known as COMSATS Institute of Information Technology), Islamabad, 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, Tohoku University, Japan to deliver scientific talk. He gave several scientific talks in various countries. His core area of research includes materials science, physics & nanotechnology. He was also offered the merit scholarship for the PhD study by the Higher Education Commission, Government of Pakistan, but he did not avail himself of the opportunity. He also earned Diploma (in English language) and Certificate (in Japanese language) in 2000 and 2001 respectively, in part-time from the National University of Modern Languages, Islamabad. He is the author of several articles available at following links; https://scholar.google.com.pk/citations?hl=en&user=UYjvhDwAAAAJ, https://www.researchgate.net/profile/Mubarak_Ali5, https://www.mendeley.com/profiles/mubarak-ali7/, & https://publons.com/researcher/2885742/mubarak-ali/publications/