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Nanoparticles-Photons: Effective or Defective Nanomedicine

Abstract

Various types of metallic nanoparticles are being used, with coating or bare surfaces, for various biological and medical applications including the stent ones. Our recent experimental studies reveal that atoms of nanoparticles deform or elongate, more or less, depending on the either impinging electron streams from the external source or under the process of synergy. Present study reports metallic tiny-sized particles where electron-dynamics of atoms safeguard the possible certain impact of application at target. Thus, nanoparticles may have the pronounced effects on their usage for nanomedicine applications and others –either effective or defective.

Keywords: Materials Science; Nanoscience; Nanotechnology; Tiny sized particles; Electron dynamics; Nanomedicine applications

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Introduction

Study of nanoparticles at atomic level is vital to implant their usage as a nanomedicine. As for effective drug delivery utilization, a size, shape, and density of nanoparticles along with their surface functionality are important factors and the kinetics of drug releasing can be tuned under the selection of the nanoparticle [1]. Several studies are available reviewing the metallic nanoparticles' scope with relation to various medical applications [2-4]. Potential benefits of the nanoparticles are accepted in smart drug delivery and diagnostic systems along with coronary restenosis [5]. Darren & Chithrani [6] presented a comprehensive review on applications of nanoparticle in medicine by offering view point on visualization, diagnosis and treatment of disease under a variety of nanoparticles. Yang et al. [7] developed a novel biliary stent.

Assembling of colloidal matter into a structure having meaningful characteristics will result into treat atoms and molecules as materials for tomorrow [8], however, for that, to understand dynamics of formation of tiny-sized particles at individual basis is the key [9]. The formation mechanisms of variety of tiny-sized particles were discussed where the role of Vander Waals interactions in binding atoms negated along with phenomenon of surface plasmons [10]. In suitable atoms of solid state behavior, their binding is under the generation of photons (at shunt energy) followed by suitable coupling [11]. A tailored energy-shape photon under bipolar pulse resulted into crop monolayer assembly having connecting triangular-shaped tiny particle [12-14] while a triangular-shaped tiny particle resulted directly under unipolar pulse mode [14]. Causes have been studied to tap such tiny shaped particles in silver and binary composition while employing the same setup and approach [15] as in the case of studies given elsewhere [12-14]. However, where two connecting triangles tiny particle is made, self-bearing the field force behavior, it divides into two equal triangular-shaped tiny particles, one toward the North-pole and the other toward the South-pole, as discussed in detail elsewhere [12]. A diffusion mechanism of atoms and tiny particles has been discussed elsewhere along with further validation that the current is related to photons wavelength in inter-state electron's gap and the duration to process a solution in developing particles is discussed as well [16]. Those atoms of solid state behavior have unfilled state and which are eligible to evolve structure, on impinging electron streams from the external source and also, under the process of synergy, they deform or elongate but do not ionize [17]. Atoms of elements that have suitable electron states are capable to generate photons characteristic current and when propagate into wire in inter-state electron's gap called photonic current where heat energy at shunt level excites the electron and a silicon atom is the best model of it [18]. Depending on the nature of electron states in an atom, its relation to field force acting from a distance is varied which becomes the origin that why some atoms are in solid state and some in gaseous state but carbon work on both sides [19] and it has been proven experimentally that all structural motifs are subjected to characteristics photons and field force behaviors [14].

Elongation of atoms of tiny particles in various metallic materials take place when the stretching of electron states is orientationally based, whereas, deformation of atoms take place when the stretching of electron states is not orientationally based [10,12,14,15]. The stretching of electron states in atoms of suitable elements take place when regular electron streams impinging from the external source, on splitting of inert gas atoms, as discussed elsewhere [17,18]. Therefore, modifications in the certain nature atoms under the inherently built scheme of their electron state (s) are the usual case while developing their tiny-sized particles (also known as nanoparticles). At one side, modifications of atoms are under their elongation and deformation behaviours – more sorts of artificial modifications. On the second side, modifications of atoms of tiny particle are under the varying orientation of electron (s) with respect to centre of inner part of atom known as nucleus –more sorts of natural modifications as the phase evolving structure change. Such modifications, in either way, don't

retain the original behavior of atoms of tiny-sized particles. Such physical behaviours connected to the nature, which are available everywhere, more or less, influence the performance of those tiny-sized particles, thus, reveal pronounced effects while using them in certain nanomedicine application turn into either their effective use or less effective use or even their defective use. As an example, in stent application, tiny-sized particles are delivered to pumping blood into the arteries which can possibly alter their functioning under the discussed modifications as well as field force behaviors at electronic level, thus, can work in either way. In the case of defective manner, instead of curing the disease they themselves become the causes of disease resulting into enhance the disease, thus, lowering the survival rate of patient under the treatment.

Atoms of certain metals deform or elongate as per available room in terms of unfilled electron states of atoms, at the point where no longer stretching (migration or diffusion) of electron states take place, they start to erode [12,17]. Such modifications of atoms become effective in making defective to their tiny-sized particles or they work in less-effective manner because the electrons at the surface of atom are not in their natural confinement, thus, their excitation and de-excitation are altered and they are not delivering the quantized energy (photons) in the manner required at (to) the point of cure. In the case, where atoms of tiny-sized particles are operating (functioning) well in terms of generating photons under shunt energy with adequate rate, it is fine, but what is the orientation of delivering those energy and then how much force energy is being generated and on which side of the atom it is going is a key as the field behavior either due to levitation or due to gravitation tilted the electrons' positions in an atom as per option available option (s), or those electron may be tacked under the certain period of time as long as one field force behavior is dominating. Such behaviors are pronounced in nanoparticles of atoms of elements known in their magnetic behavior and further details will be given elsewhere [19]. Three different nanoparticles (tiny-sized particles) resulting, give effective energy (photons) are shown in Figure 1a-1c while three different destructive (less effective) nanoparticles are shown in Figure 2a-2c. In Figure 1a, two-dimensional structure is bound to give controlled behavior of force energy per unit surface area in contact, under watch and at target. In Figure 1b, two-dimensional structure modified the structure (into smooth elements) giving controlled force energy per unit surface area but different to the one given in the case shown in Figure 1a. In Figure 1c, three-dimensional structure giving controlled force energy per unit volume as per crystal structure. In Figure 2a-2c, all three different tiny-sized particles don't reveal any sort of uniform distribution of force energy either per unit area or per unit volume and resulting photons' energy is remained non-uniform per unit area/volume, thus, making those nanoparticles (tiny-sized particles) defective or less-effective while working at the target, their effectiveness is soliciting under neutral behavior of the field force. These nanoparticles are called tiny-sized particles because quite a large sized particles (>15nm) are also termed as 'nanoparticles' and for nanomedicine applications, in the most of the cases, the requirement of size range is smaller than (or close to) 15 nm.

The atoms of tiny-sized particles connecting tits and bits of energy from the surrounding vicinity while exciting/de-exciting electrons converting into actively organized energy [18], thus, supplying the force energy to infected region need treatment or doze and where it is not possible in a natural sort of way. Under defective structure of tiny-sized particles or incompetence utilization of those effectively delivered energies at (to) the point of cure result into unavoidable medical issues to a patient and can be unrecovered under certain circumstances. Thus, those tiny-sized particles or their certain number of atoms or even their single atom in modified behavior may result into give different result to the ones anticipated by the Surgeon or medical specialist.

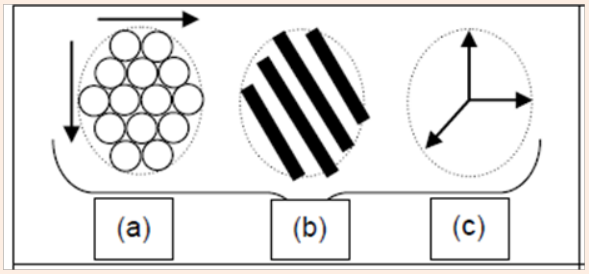

Figure 1: Effective nanoparticles (tiny-sized particles).

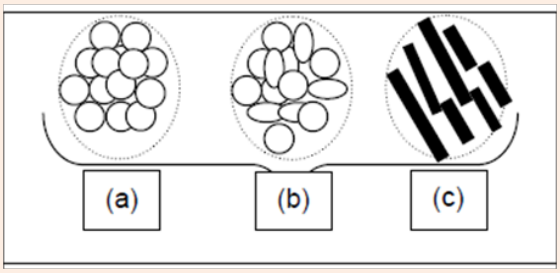

Figure 2: Defective nanoparticles (tiny-sized particles).

As a future direction, nanoparticles are replacing with the others in various fields of biology and medicine, working as nano-devices, where their atoms involve magnetic behavior, thus, releasing the drug load to the tumor or destroying unwanted tissue through heat as pointed out elsewhere [20]. However, atomic behavior is quite sensitive where tiny-sized particles are known by their magnetic behavior as their electron states are highly sensitive to external field [19], thus, may cause effects, more or less, not required/thought while their use as a nanomedicine. The effects of field forces at electronic level in atoms of tiny-sized particles may vary region to region and may be inevitable while treatment of the patient even in clean room made for such purposes and under ordinary normal taken precautions. Such field force dependant behaviors are recognized at more clarity when carbon atoms of solid state dealing various sorts of phases of evolving structure [21,22].

But how to control the behavior (s) of field force (s) which are influencing locally is remained the challenge but the crucial one as well. However, we can see and observe ice layers forming at the surface of water in certain cold regions where water below the ice layer is in normal condition (due to absence of gravitism phenomenon) where aquatic life is in the same way where ice is

not covering the water's surface. Thus, it can be planned, more or less, on similar lines to instate neutral behavior of levity gravity.

Conclusion

Originating the certain scope of nanoscale materials in nanomedicine applications as well as in others should be based on their atoms dealing deformation or elongation behaviors along with field force behaviors. Such efforts in synthesizing nanoparticles will lead into their controlled usage along with as per requirement, thus, resulting into their effective use and with full confidant of medical doctor, who is, in fact, not a materials scientist or the one working on physical sciences, but the implications are being faced in the case of unsuccessful operation. In the view of above-said, scientists and researchers should research materials for nanomedicine applications and others in more planned ways by cutting-down the financial interest as it is a matter of human health.

Conflict of interest

Author declares no conflict of interest.

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