Change structure in nanostructures Nano Structure to acquire new nanoelectronic devices and tools

Dr.Afshin Rashid , Assistant Professor

Faculty member Islamic Azad University of Science and Research Branch, Tehran

- **Abstract:**

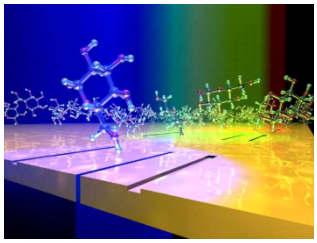
- All atoms in nanostructures have a certain amount of energy at any temperature due to their oscillations. The amplitude of this oscillation is not the same in all atoms of nanostructures . On the contrary, surface atoms have more amplitude of oscillation due to the greater freedom of space they have. In this way, the strange behavior of solids in reducing their melting temperature can be explained.

- **Keywords:** Nanostructure , nanomaterials , amplitude of oscillation , nanoelectronic

Introduction •

When the average amplitude of atomic vibrations reaches a certain coefficient of the constant value of the nanostructures network , these vibrations can no longer increase without damaging and destroying the nanoparticle network. Therefore, by increasing the average amplitude of vibrations to greater values, the nanostructures are removed from the crystal lattice mold and melt. Surface atoms have higher average oscillations, and if the number of surface atoms increases, they can have a clear effect on the average amplitude of the total oscillations of the material atoms. Therefore, as the dimensions of nanostructures shrink to the extent that the ratio of the number of surface atoms to the number of volume atoms reaches a significant value, the average amplitude of nanomolecular oscillations will increase significantly;

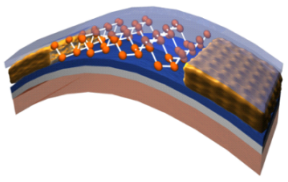
Under these conditions, with increasing surface instability of the material, the nano melting temperature Nanostructures Nano Structure will be reduced.



In the change (structure) of nanostructures Nano Structure One of the natural thermal phenomena due to the shrinkage of the material structure is the thermal instability of nanoparticles. As you know, (heat has energy E), which - 03 - its energy is proportional to the ambient temperature. This energy is equal to KBT. In this relation KB is the Boltermann constant and a constant value equal to and T is the temperature in Kelvin. Therefore, when nanostructures are placed in different environments, electrons are given energy (-0.01 * 0 / 33JK) due to heat. Now consider a property of a particle that generally depends on (nanoparticle volume V). The energy of this property is U and a function of V. When the volume is small enough that the KBT is larger than U, then the condition will be thermally unstable.An important feature of all nanostructures is summarized in that the number of atoms (surface) in them is greater than the number of atoms (volume). This ratio increases with decreasing size (nanoparticles). Therefore, the size of the nanoparticle is an important feature. The shapes and sizes of nanostructures are naturally determined by their composition and formation conditions. The properties of nanostructures, in turn, determine the originality of the properties of nanostructures and the possible contexts of their operation . The range of 1 to 1000nm is introduced as the range of nanostructures, an important feature of nanostructures is the control of the organization's own processes. The range of change in nanostructure activity depends on the nature and shape of the nanostructure. With However, if the energy field of nano-energy electromagnetic radiation is comparable if certain range Wavelength changes dramatically with the occurrence of chemical reactions in irradiated materials. The activity of nanoparticles will be significant up to 100 nm.

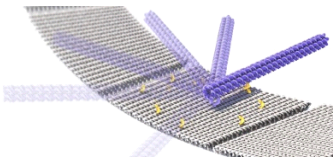
Application of plasmonic science in compression of nanoelectronic circuits and nanostructures Nano structure •

With the technology approach to the aggregation of optical electronic circuits, fabrication problems and phenomena that helped prevent further compression of the structure, led to the use of plasmonic structures and plasmonic waves to be investigated and used. These nanostructures are composed of metal and dielectric, the dimensions of which are below the excitation wavelength (the wavelength of the beam that excites the plasmonic waves).



Plasmonics is based on the process of interaction between electromagnetic waves and conducting electrons in nanoscale metals. Analytically, it is the reason for the rapid decrease in

the energy of electrons in the passage of metals, and concluded that this energy is used for the cumulative motion and oscillation of free electrons of metal, and called it plasmon. The reason for this naming was the similarity of these electron oscillations with the oscillations of the particles in the plasma environment. The term polariton is used to oscillate metal-bound electrons when paired with incident beam phonons. The name polariton was used for quasi-particles that were half matter and half a photon, which is a coupled state between an elementary excitation beam photon and metal conduction electrons, and the term Plasmon Polariton to express the cause of a coupling between a photon and Is a plasmon.



The division of this nascent science into two domains of localized superficial plasmons and superficial polariton plasmons is briefly introduced. In localized superficial plasmons, nanoparticles are the basis of interactions, and their properties in stimulating this mode of plasmonic waves have been investigated. In superficial plasmon plasmons, with the introduction of their working foundation, there is its field formulation and how these structures exceed the diffraction limit. Nanostructures have fundamental differences, both in terms of synthesis and production, as well as in terms of properties and applications. In general, the electrical, optical, magnetic, surface, etc. properties of these three structures are fundamentally different from each other, and of course their applications are also different. One-dimensional nanostructures can be used for electronic connections, while zero-dimensional and two-dimensional nanomaterials do not.The main basis of nanotechnology is the use of materials. Every material in space has three dimensions of length, width and height. If in materials at least one of these three dimensions is in the nanometer range, it is called a substance, a nanostructure.

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