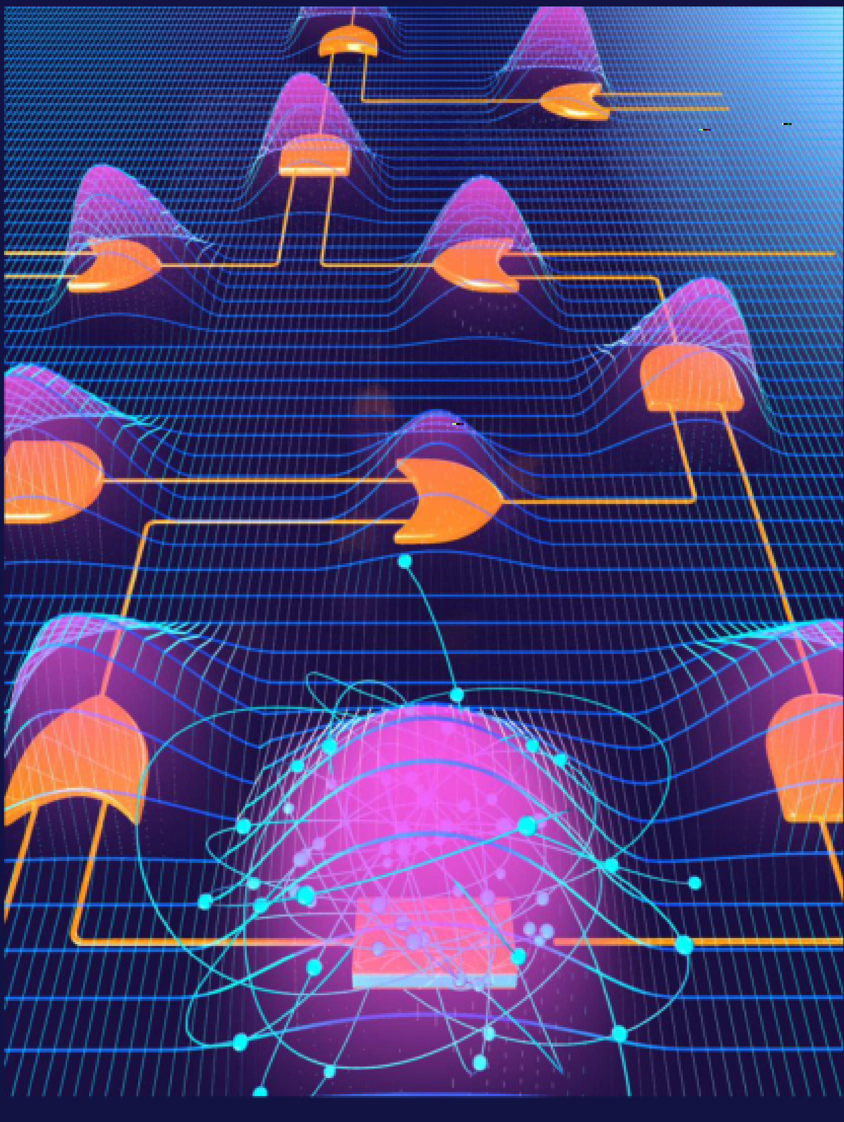
Nano Memory Moulcolar Book



Author : Dr. Afshin Rashid

(About the Author)

Author: Afshin Rashid

Scientific Level Author: PhD in Nano _ Microelectronics

Website: www.electronic-tarfand.blog.ir

Email :afshinrashid342@gmail.com

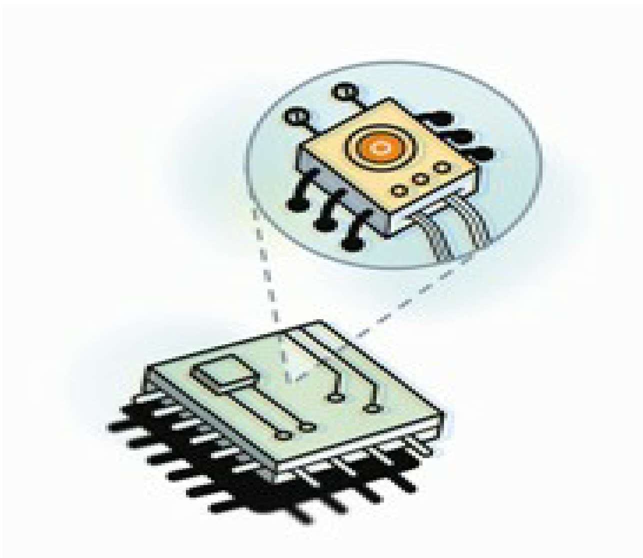
Dr.afshin_rashid@yahoo.com

Contact Number: (+98)09198162769

Foreword by the author of the book Dr. Afshin Rashid

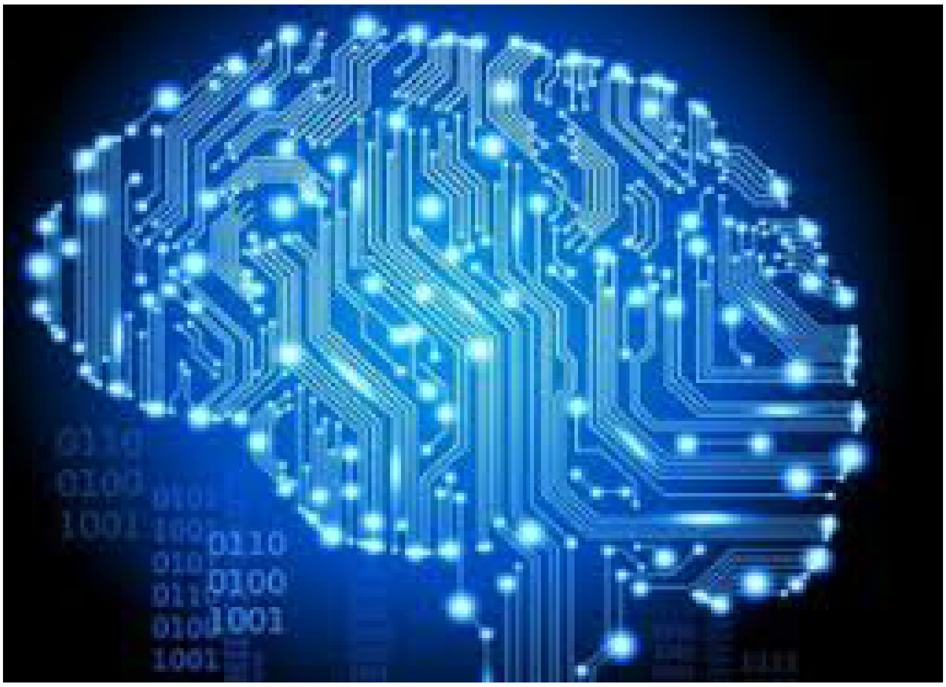
in praise of electronic science is enough that it is the most applied science in societies. And let's not forget that nano-microelectronics is the top trend in electronics and the key to achieving a superior technology in the next half century. It may not be believable, but a change in the volume and redesign of electronic and telecommunication circuits based on nanoelectronics can increase the efficiency and power of these electronic elements many times over. And superior in terms of scientific progress in the marine industry; Military ; medical ; Electronic; Telecommunications; bring on .

Most new electronic devices require a lot of memory. Consumers today are looking for gigabytes of memory. New flash drives are now on the market that have more than 60GB of memory, and it is still desirable to store more in less space. Conventional technology can hardly meet these demands, but nanotechnology offers better solutions.One of the new data storage tools is the use of nickel quantum dots in nanometer sizes that are expected to be used to store terabytes of data, even at home and in personal use. Given the relatively large (physically) storage devices we currently have, and the fact that we need sizes around GIGABYTE in various fields, there is great potential for activity in this area.



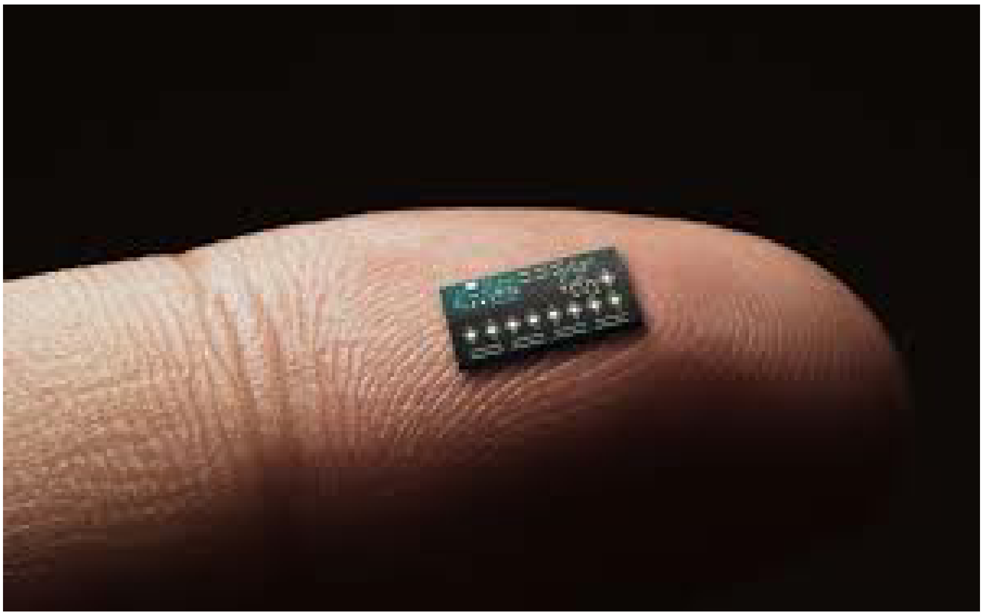
Each quantum dot contains a separate ball of several hundred atoms that can have one of two magnetic states.

This allows them to contain a bit of information (zero or one), as is customary in machine computing. On common hard disks, the data bits must be spaced far enough apart to avoid retaliation. Quantum dots act as completely independent units that are not structurally interconnected, so they can be somewhat closer together. They can be arranged to a certain density that allows any type of information up to 5 terabytes to be stored in a space the size of a postage stamp. Activities should continue until these nanoparticles work better and work with other computing devices such as silicon chips.: By using the structure of nanomolecular memory , the size of memory bits can be substantially reduced, thereby increasing the density and efficiency of magnetic memory and lowering its cost and cost. Nano lithography techniques are now being used to provide some very powerful memories.Nano electronics science and technology offer different capabilities of nano molecular memory . Photofraction materials, for example, represent only one type of optical memory. In fact, with the use of nanotechnology, the storage capacity of information can be increased by a thousand times or more. Information storage is a very important and necessary topic that can be done in different ways through nanomolecular memory . One of the new data storage tools is the use of nickel quantum dots in nanometer sizes that are expected to be used to store terabytes of data. Due to nano molecular memory, there is a high potential for activity in this field.



Energy storage in backup nanostructures (SRAM multifunctional molecular memory)

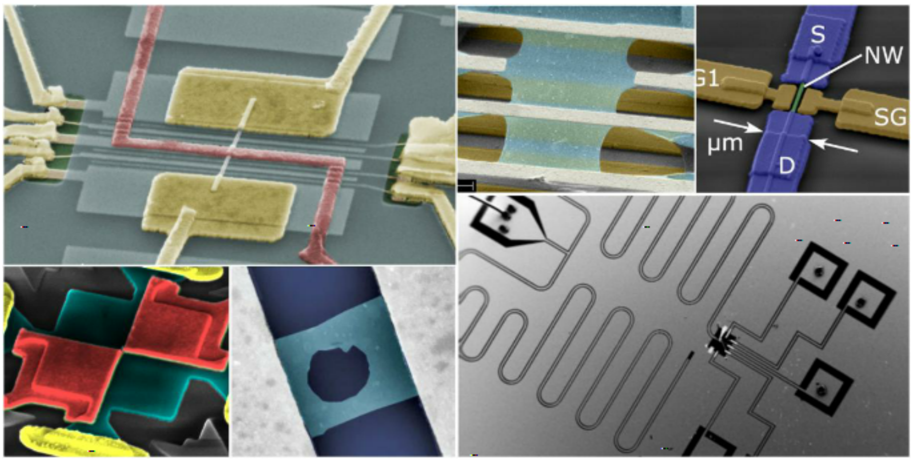
One of the technologies that has grown significantly in recent years and can be the source of change in various industries, including nanoelectronics in the near future, is the technology of making supercapacitors. It can be said that supercapacitor is a kind of interface between electrolyte capacitors and rechargeable batteries. Structure and structure of supercapacitors based on nanoelectronics to store 100 times more load in equal volumes than other types of electrolytes and to charge and discharge much faster than batteries. Of course, these capacitors still store up to 10 times less load in equal volumes than some types of batteries. (So far, their major use in the electronics industry has been as a backup for SRAM molecular nanoparticles.)Making Nano memory cloud chips Nano memory cloud is a carbon nanotube memory, although the discovery of small but very strong, flexible and conductive carbon nanotubes with dimensions similar to DNA strands and the use of organic molecules Absorb chlorophyll microchips instead of load storage capacitors in nano-type memory chips. Nanocrystals, the use of which will increase the lifespan of nano-memory.Nanoelectronics science and technology offer different super- memory capabilities . Photofraction materials, for example, represent only one type of optical memory. In fact, with the use of nanotechnology, the storage capacity of information can be increased by a thousand times or more. Information storage is a very important and necessary topic that can be done in various ways through nano-memory supercontrollers . One of the new data storage tools is the use of nickel quantum dots in nanometer sizes that are expected to be used to store terabytes of data. Due to the super nano memory, there is a high potential for activity in this field.



In electrical conductivity from a conductor to a semiconductor or a modifiable electrical insula ion of nanotubes depending on their structure and molecular chiral angle . Because carbon nanotubes are able to pass electric current through frictional electron ballistic transfer - this current is 100 times greater than the current flowing through copper wire - nanotubes are an ideal choice for making Nano chips. memory cloud Nano is a memory cloud .Supporting nanostructures (SRAMs) are memory chips made of carbon nanotubes, although the discovery of small but very strong, flexible, and conductive carbon nanotubes with dimensions similar to DNA strands has been And the use of chlorophyll-like microorganisms instead of charge storage capacitors in DRAM and SRAM memory chips. Nanocrystals, the use of which will increase the lifespan of flash memory. And the development of a magnetic material based on the protein ferritin, which will be used to make disk drives and memory chips. The production and manufacture of memory is one of the largest industrial sectors, but it also faces several technical problems; Problems such as capacitor leakage, structures with increasing complexity, and sensitivity to minor errors due to cosmic rays. The existence of such problems makes it impossible for chip makers to reduce their chip dimensions beyond this. Other notable issues in this area include SRAM chips for large memory cells, the difficulty of placing DRAM and flash memory alongside logic chips, and the slow access time of flash memory and its limited stability. One of the technologies that has grown significantly in recent years and can be the source of change in various industries, including nanoelectronics in the near future, is the technology of making supercapacitors. It can be said that supercapacitor is a kind of interface between electrolyte capacitors and rechargeable batteries. Structure and structure of supercapacitors based on nanoelectronics to store 100 times more load in equal volumes than other types of electrolytes and to charge and discharge much faster than batteries. Of course, these capacitors still store up to 10 times less load in equal volumes than some types of batteries. (So far, their major use in the electronics industry has been as a backup for SRAM memory.)

Common nanoelectronics technologies in nano-memory hardly meet the demands, but nanotechnology offers better solutions. One of the new data storage tools is the use of nickel quantum dots in nanometer sizes that are expected to be used to store terabytes of data, even at home and in personal use.

Given the relatively large (physically) storage devices we currently have, and the fact that we need sizes around GIGABYTE in various fields, there is great potential for activity in this area.Each quantum dot contains a separate ball of several hundred atoms that can have one of two magnetic states. This allows them to contain a bit of information (zero or one), as is customary in machine computing. On common hard disks, the data bits must be spaced far enough apart to avoid retaliation. Quantum dots act as completely independent units that are not structurally interconnected, so they can be somewhat closer together. They can be arranged to a certain density that allows any type of information up to 5 terabytes to be stored in a space the size of a postage stamp. Activities should continue until these nanoparticles work better and work with other computing devices such as silicon chips. By using the structure of nanomolecular memory , the size of memory bits can be substantially reduced, thereby increasing the density and efficiency of magnetic memory and lowering its cost and cost. Nano lithography techniques are now being used to provide some very powerful memories. Nanoelectronics science and technology offer different capabilities of nano molecular memory . Photofraction materials, for example, represent only one type of optical memory. In fact, with the use of nanotechnology, the storage capacity of information can be increased by a thousand times or more. Information storage is a very important and necessary topic that can be done in different ways through nanomolecular memory .One of the new data storage tools is the use of nickel quantum dots in nanometer sizes that are expected to be used to store terabytes of data. Due to nano molecular memory, there is a high potential for activity in this field.



In electronics, the topic of nano-axis (nano-memory; nano-chips and nano-fast chips and nano-electronic components) is less weighty and more efficient. Nanotechnology, science, engineering and technology at the nanoscale or in other words and the study of the use of very small objects and their use in all fields of science such as chemistry, biology, electronics; Materials science and engineering. The history of nanotechnology describes the development of concepts and experimental work in the field of nanotechnology. Although nanotechnology is one of the recent advances in scientific research, the development of its basic concepts has taken place over a long period of time. Throughout human history since ancient Greece, scientists at the time believed that matter could be broken down into small pieces to form particles that were unbreakable and formed the basis of matter. Nano is a word with Greek roots meaning "dwarf", which in the science of measurement, the prefix nano comes before the units of measurement meters, seconds, grams and..By using nanostructures, the size of memory bits can be substantially reduced, thereby increasing the density and efficiency of magnetic memory and lowering its cost and cost. Nano lithography techniques are now being used to provide some very powerful memories. Science and technology offer different memory nanomaterials. Photofraction materials, for example, represent only one type of optical memory. CDs and DVDs that go to record music and movies are themselves a type of optical technology that can be read using a laser. In fact, using nanomaterial technology can increase the data storage capacity by a thousand times or more. Information storage is a very important and necessary topic that can be done in different ways.Nanoelectronics has a new approach in the electronics industry in the field of new types of circuits, processors, data storage methods and even new methods of optoelectronics to transmit information. Most new electronic devices require a lot of memory. Consumers today are looking for gigabytes of memory. New flash drives are now on the market that have more than 60GB of memory, and it is still desirable to store more in less space. Conventional technology can hardly meet these demands, but nanotechnology offers better solutions.One of the new data storage tools is the use of nickel quantum dots in nanometer sizes that are expected to be used to store terabytes of data, even at home and in personal use. Given the relatively large (physically) storage devices we currently have, and the fact that we need sizes around GIGABYTE in various fields, there is great potential for activity in this area.

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Backup nanostructures (SRAMs) Function and internal structure

Supporting nanostructures (SRAMs) are memory chips made of carbon nanotubes, although the discovery of small but very strong, flexible, and conductive carbon nanotubes with dimensions the size of DNA strands and the use of molecules Absorb chlorophyll-like microorganisms instead of load storage capacitors in DRAM and SRAM memory chips. Nanocrystals, the use of which will increase the lifespan of flash memory. And the development of a magnetic material based on the ferritin protein that will be used to make disk drives and memory chips.The production and manufacture of memory is one of the largest industrial sectors, but it also faces several technical problems; Problems such as capacitor leakage, structures with increasing complexity, and sensitivity to minor errors due to cosmic rays. The existence of such problems makes it impossible for chip makers to reduce their chip dimensions beyond this. Other notable issues in this area include SRAM chips for large memory cells, the difficulty of placing DRAM and flash memory alongside logic chips, and the slow access time of flash memory and its limited stability.

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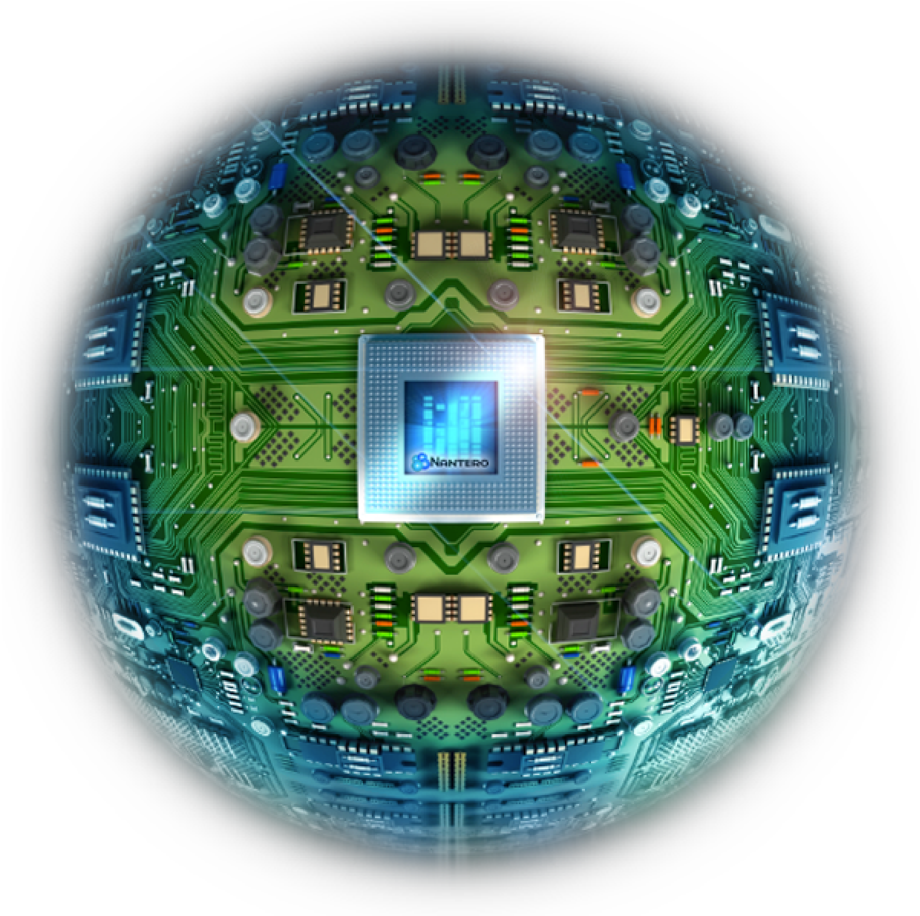
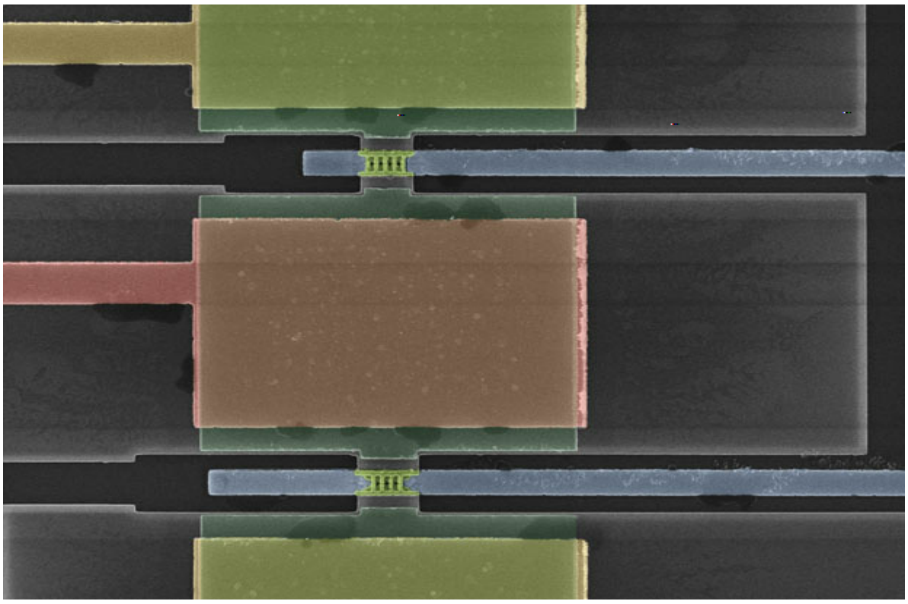
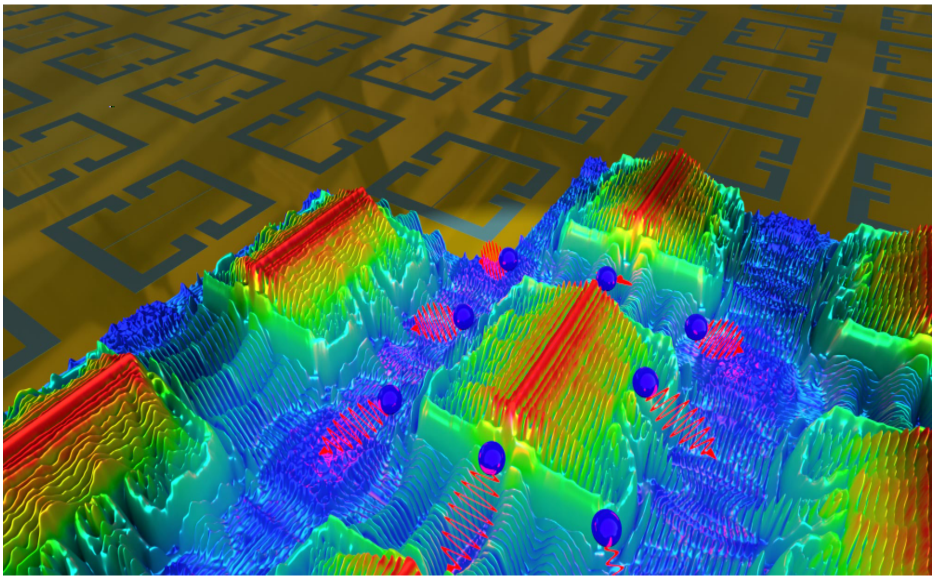


The dielectric nanoplayer is a barrier between positive and negative charges that has a very small thickness. And nanomaterials are electrolytes that contain both positive and negative ions. By placing the potential between the capacitor electrodes, the negative ions move towards the positive electrode and the positive ions move towards the negative electrode. Finally, two capacitors are obtained, which are connected in series.Supporting nanostructures (NRAMs) are memory chips made of carbon nanotubes, although the discovery of small but very strong, flexible, and conductive carbon nanotubes with dimensions similar to DNA strands has been used. Absorb micro-chlorophyll-like organic molecules instead of charge storage capacitors in DRAM and NRAM memory chips. Nanocrystals, the use of which will increase the lifespan of flash memory. And the development of a magnetic material based on the ferritin protein that will be used to make disk drives and memory chips.The production and manufacture of memory is one of the largest industrial sectors, but it also faces several technical problems; Problems such as capacitor leakage, structures with increasing complexity, and sensitivity to minor errors due to cosmic rays. The existence of such problems makes it impossible for chip makers to reduce their chip dimensions beyond this. Other notable issues in this area include SRAM chips for large memory cells, the difficulty of placing DRAM and flash memory alongside logic chips, and the slow access time of flash memory and its limited stability.Each quantum dot contains a separate ball of several hundred atoms that can have one of two magnetic states. This allows them to contain a bit of information (zero or one), as is customary in machine computing. On common hard disks, the data bits must be spaced far enough apart to avoid retaliation. Quantum dots act as completely independent units that are not structurally interconnected, so they can be somewhat closer together.

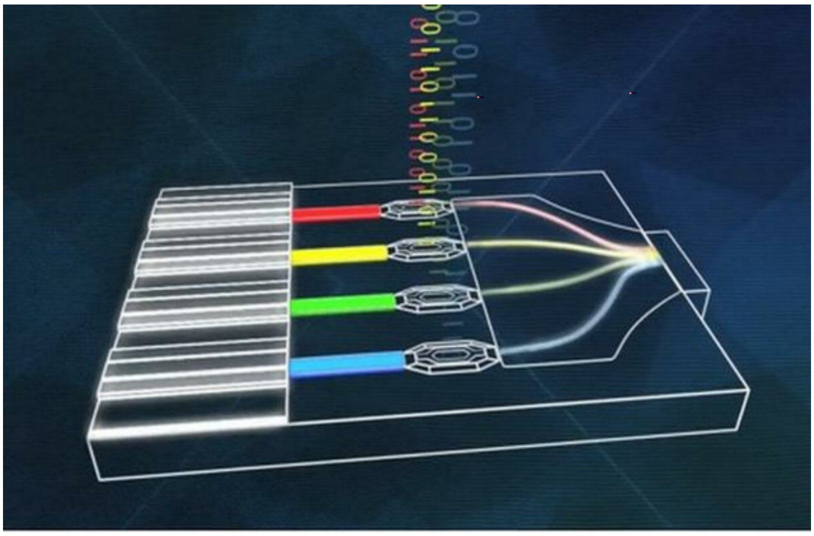


The so-called nano-quantum size effect describes the physics of electron properties in solids with a large reduction in particle size. This effect does not work by going from macro to micro dimensions. However, when it reaches the nanometer size range, it prevails.

Nano-quantum effects can dominate the behavior of matter at the nanoscale - especially at the lower end (single digits and tens of nanometers lower) - and influence the optical, electrical and magnetic behavior of materials. Materials can be produced at the nanoscale in one dimension (eg very thin surface coatings), in two dimensions (eg nanowires and nanotubes) or in all three dimensions (eg nanoparticles and quantum dots). The reasons for these drastic changes stem from the bizarre world of quantum physics. The mass properties of any substance are simply the average of all the quantum forces that affect all the atoms that make up matter. As you make things smaller and smaller, you will eventually reach a point where averaging no longer works and you will have to deal with the specific behavior of atoms or molecules - a behavior that can be achieved when these atoms are in the same substance. Masses are very different. Materials reduced at the nanoscale can suddenly show very different properties compared to what they show at the macro scale. For example, opaque materials become transparent (copper). Inert materials become catalysts (platinum). Stable combustible materials (aluminum); Solids turn into liquid at room temperature (gold). Insulators become conductors (silicon). Another important aspect of nanomaterials is the surface area. Compared to the same mass of materials in the form of mass, nanoscale materials have a relatively larger surface area. This can make materials more chemically reactive (in some cases, bulk inert materials are reactive when produced at the nanoscale) and affect their strength or electrical properties.The attractiveness of nanotechnology stems from the unique quantum and surface phenomena that matter at the nanoscale, enabling new applications and exciting materials. The goal of evolutionary nanotechnology is to improve existing processes, materials, and applications by shrinking the nanoscale and ultimately taking full advantage of the unique quantum and surface phenomena that matter represents at the nanoscale. Quantum nanostructures operate on a very small scale through the use of matter, and are dependent on and based on advances in nanotechnology. Using nanotechnology in quantum computing and other similar electronic technologies, there are two basic principles at the core of nanotechnology: First, the smaller the material, the higher the relative surface area of the material. And the second is the loss of bulky properties instead of quantum phenomena when it reaches such a small scale. Quantum nanotechnology is based on the principle of electronic tunneling. The basic theory is that a particle enclosed in a single-dimensional nano-memory cannot escape unless the electron makes its way out of the enclosure. This is a phenomenon that is exhibited only by quantum matter and is not seen by any bulky substance. This principle can be extended to include all 3D - the so-called particle in a 3D nano-memory. The amount of electron confinement that enters a substance determines its dimension - because quantum dimensions are relative to the confinement of electrons (and in which dimensions electrons operate) more than the atomic spatial arrangement. Quantum dots are probably the most well-known quantum structure in nanoparticles. The interesting thing about quantum dots is that they are electronically constrained in all three dimensions, so they are classified as zero-dimensional materials.

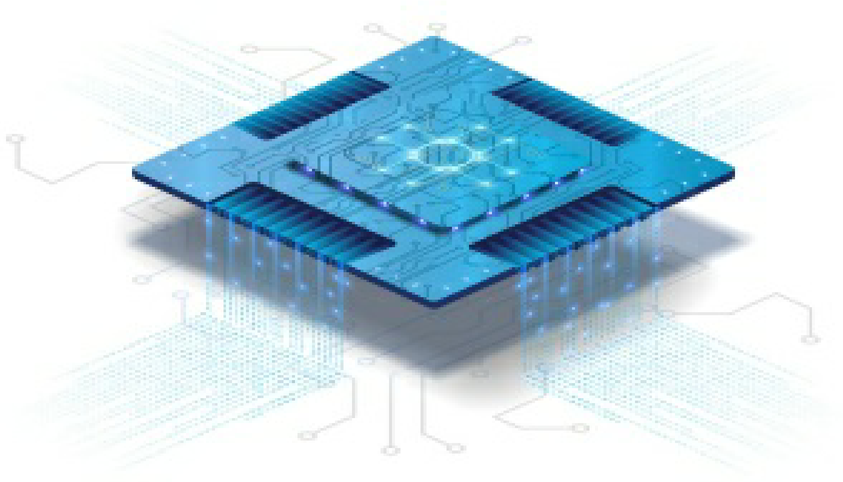


Quantum dots are an interesting class of materials, and many of them are functional (usually customizable). They are semiconductor in nature and are often referred to as artificial atoms because they have discrete electronic states - that is, states that can only receive certain amounts of energy (unlike bulky materials). Quantum dots are now considered in many applications, such as electronic nano-memory. Quantum nanowires, otherwise known as nanowires, are a one-dimensional structure of electrically conductive electrons enclosed in two dimensions. They are known as "wires" because the movements of the electrons are restricted in a transverse direction, that is, along the wire, making them work like ordinary wires. They are used to transmit electrons in electronic nanostructures, but only certain energy levels can be used because their bands are also discrete. One of the main advantages of quantum wires is their high image ratio, in which the length of the wire can be up to 1000 times its width. In the internal structure of nano-memory quantum electrons, electrons can tunnel and connect nanopotential holes to form a lattice supercharger. These supergrids contain nanobonds that travel the length of the connected potential hole, meaning that electrons can move easily between the holes, enabling the super lattice to have excellent charge-carrying and in some cases superconducting properties. To show himself. This produces nano-quantum memory.Using nanotechnology in quantum computing and other similar electronic technologies, there are two basic principles at the core of nanotechnology: First, the smaller the material, the higher the relative surface area of the material. And the second is the loss of bulky properties instead of quantum phenomena when it reaches such a small scale.Quantum nanotechnology is based on the principle of electronic tunneling. The basic theory is that a particle enclosed in a single-dimensional nano-memory cannot escape unless the electron makes its way out of the enclosure. This is a phenomenon that is exhibited only by quantum matter and is not seen by any bulky substance. This principle can be extended to include all 3D - the so-called particle in a 3D nano-memory. The amount of electron confinement that enters a substance determines its dimension - because quantum dimensions are relative to the confinement of electrons (and in which dimensions electrons operate) more than the atomic spatial arrangement. Quantum dots are probably the most well-known quantum structure in nanoparticles. The interesting thing about quantum dots is that they are electronically constrained in all three dimensions, so they are classified as zero-dimensional materials.



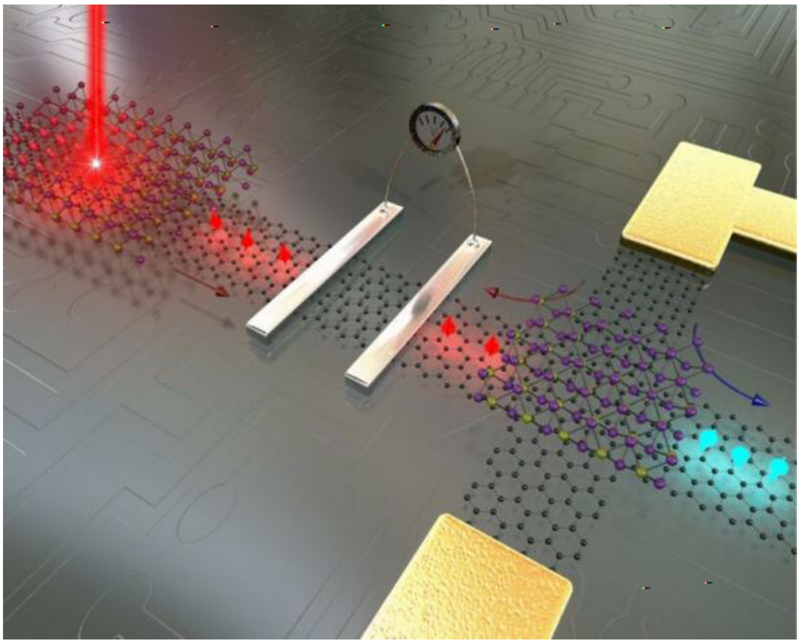
By using the structure of nanomolecular memory , the size of memory bits can be substantially reduced, thereby increasing the density and efficiency of magnetic memory and lowering its cost and cost. Nano lithography techniques are now being used to provide some very powerful memories. Nanoelectronics science and technology offer different capabilities of nano molecular memory . Photofraction materials, for example, represent only one type of optical memory. In fact, with the use of nanotechnology, the storage capacity of information can be increased by a thousand times or more. Information storage is a very important and necessary topic that can be done in different ways through nanomolecular memory .One of the new data storage tools is the use of nickel quantum dots in nanometer sizes that are expected to be used to store terabytes of data. Due to nano molecular memory, there is a high potential for activity in this field. circuits on chips rely on electrons as carriers of information. In the future, photons that transmit information in optical circuits at the speed of light can also take on this task. The main building blocks of such new nanoparticles are quantum light sources, which are then connected to nano-quantum waveguides and optical detectors.In

Nano mulcular quantum building blocks, light sources must be coupled to photonic circuits, such as waveguides, to enable light-based quantum computing. The determining factor here is the precise and controllable placement of light sources. In ordinary three-dimensional materials. There are also active quantum light sources such as diamonds or silicon, but they cannot be placed exactly there. By using the structure of nanomolecular memory , the size of memory bits can be substantially reduced, thereby increasing the density and efficiency of magnetic memory and lowering its cost and cost. Nano lithography techniques are now being used to provide some very powerful memories. Nanotechnology science and technology facilities Nano molecular memory offers different. Photofraction materials, for example, represent only one type of optical memory. In fact, with the use of nanotechnology, the storage capacity of information can be increased by a thousand times or more. Information storage is a very important and necessary topic that can be done in different ways through nanomolecular memory . One of the new data storage tools is the use of nickel quantum dots in nanometer sizes that are expected to be used to store terabytes of data. Due to nano molecular memory, there is a high potential for activity in this field.Each quantum dot contains a separate ball of several hundred atoms that can have one of two magnetic states. This allows them to contain a bit of information (zero or one), as is customary in machine computing. On common hard disks, the data bits must be spaced far enough apart to avoid retaliation. Quantum dots act as completely independent units that are not structurally interconnected, so they can be somewhat closer together. In fact, with the use of nanotechnology, the storage capacity of information can be increased by a thousand times or more. Information storage is a very important and necessary topic that can be done in various ways through nano -memory . One of the new data storage tools is the use of nickel quantum dots in nanometer sizes that are expected to be used to store terabytes of data. Due to the super nano memory, there is a high potential for activity in this field.Graphene Nano Memory Moulcolar is a transparent flexible nano-graphene floating gate transistor memory nanostructure made by combining an active single-layer graphene channel with gold nanoparticle trap elements. Systematically the dimensions of the gold nanoparticle trap elements, the thickness of the dielectric tunneling layer and the graphene doping surface are very important in its production. In particular, conductivity differences (e.g. , memory window) between programming and clearing operations at a specific gate voltage can be maximized by doping. The resulting graphene nanomaterials are molecularly developed, excellent programmable nanoscale memory performance compared to previous graphene memory devices and a large memory window (12 volts), fast switching speed (1 microsecond), capability Shows strong electrical reliability.



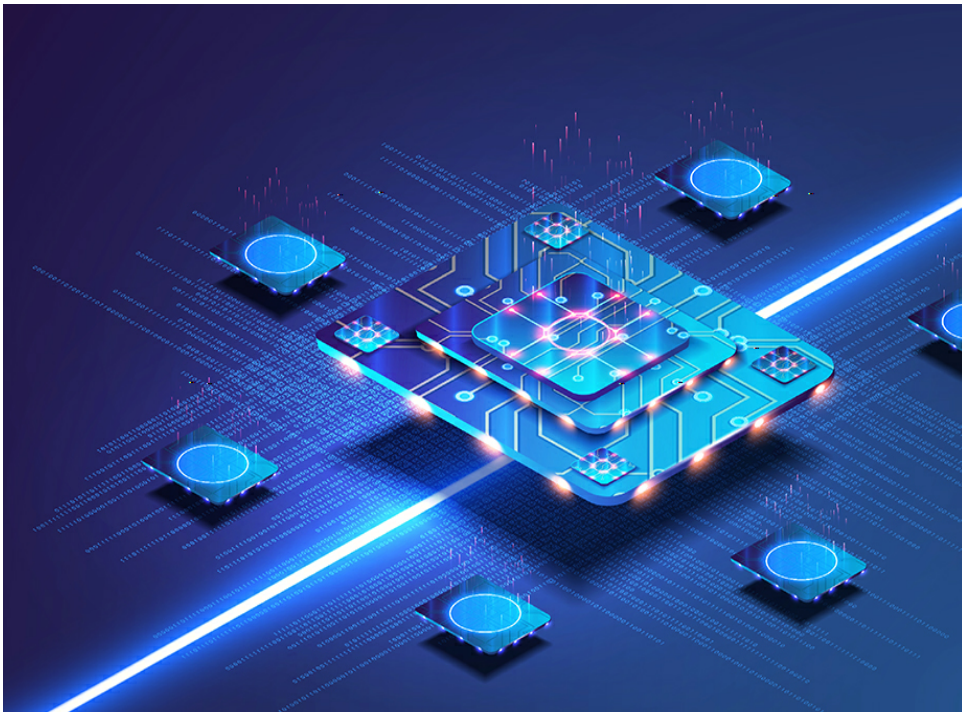
Graphene molecular nanoparticles show unique electronic properties, and their small size, structural strength, and high performance make them very promising as a charge storage medium for nanoparticle applications. With the development of small and large devices, graphene nanostructures are emerging as an ideal material. Graphene Molecular Nano Memories A new non-volatile charge trapping memory using isolated nano-graphene crystals and uniform distribution is used as a nano floating gate with excellent controllability and uniformity. Nano-graphene load trapping memory with large memory gate (4.5V) at low operating voltage (8V), chemical and thermal stability (1000 ° C), as well as adjustable memory performance using different tunneling . Graphene has outstanding nanoelectronic properties, very high electron mobility and unparalleled nanoscale conductivity. It is so conductive that it transmits electrons ten times faster than silicon. These properties make graphene an ideal candidate for next-generation nanoelectronic applications such as graphene molecular nanoparticles . The efficiency of graphene particles is measured in the protection of interfering and reinforced nano-electromagnetic nanoparticles with modified graphene nano-strips. There are single-layer, double-layer and multi- layer graphenes. It is the hardest known material with its low thickness. Graphene is very transparent because it is as thick as an atom and transmits light and has a high nanoelectric conductivity.

The resulting graphene nanomaterials are molecularly developed, excellent programmable nanoscale memory performance compared to previous graphene memory devices and a large memory window (12 volts), fast switching speed (1 microsecond) , Shows strong electrical reliability.Graphene molecular nanoparticles show unique electronic properties, and their small size, structural strength, and high performance make them very promising as a charge storage medium for nanoparticle applications. We apply a set of techniques using a nanoparticle solution, which creates a very thin layer on the substrate, and is used as a sacrificial layer during the nanoparticle process. Due to the interaction between the nanoparticles, they can organize themselves and create a thin layer that creates holes between them, a technique originally called natural lithography . Due to the integration nature of colloidal particles and their hydrophilic properties, they form a colloidal crystal with arranged cavities through which the material of interest penetrates and settles on the substrate. For example, polystyrene latex nanospheres can be used. The precipitated material on the nanoparticles disappears after the sample is immersed in a suitable solvent and sonicated. This process is similar to a removal process . The advantages of this technique include wide patterns, simplicity, good resolution and the ability to combine with other lithographic techniques. On the other hand, this technique creates problems due to the limited forms available for patterned applications, the arrangement of nanot patterns and the existence of point defects. Combined nano-lithography has also been used to perform sequential exposure to chemical resistances enhanced by optical lithography and electron beam lithography. Oriented copolymer block nano-lithography is a combination of top-down lithography and self-organizing two polymers from the bottom. Up to produce high-resolution nano-pattern in large areas . Typically, self-organizing copolymer blocks are randomly oriented and lack long-term order , but the previous top-down pattern provides the basis for directional copolymer block lithography. , Combined nano-lithography irradiation of a substrate causes the preferential growth of semiconductor materials in irradiated areas, which can be used to construct regular arrays of semiconductor points.



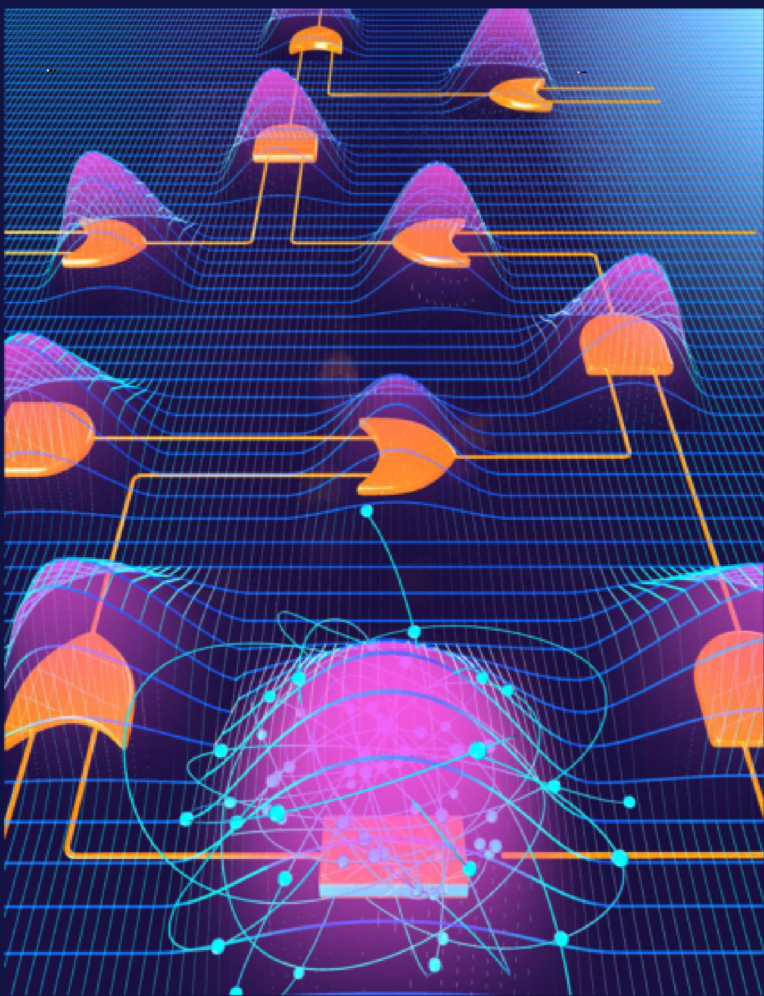
The attractiveness of nanotechnology stems from the unique quantum and surface phenomena that matter at the nanoscale, enabling new applications and exciting materials. The goal of evolutionary nanotechnology is to improve existing processes, materials, and applications by shrinking the nanoscale and ultimately taking full advantage of the unique quantum and surface phenomena that matter represents at the nanoscale.

Quantum nanostructures operate on a very small scale through the use of matter, and are dependent on and based on advances in nanotechnology. Using nanotechnology in quantum computing and other similar electronic technologies, there are two basic principles at the core of nanotechnology: First, the smaller the material, the higher the relative surface area of the material. And the second is the loss of bulky properties instead of quantum phenomena when it reaches such a small scale. Quantum nanotechnology is based on the principle of electronic tunneling. The basic theory is that a particle enclosed in a single-dimensional nano-memory cannot escape unless the electron makes its way out of the enclosure. This is a phenomenon that is exhibited only by quantum matter and is not seen by any bulky substance. This principle can be extended to include all 3D - the so-called particle in a 3D nano-memory. The amount of electron confinement that enters a substance determines its dimension - because quantum dimensions are relative to the confinement of electrons (and in which dimensions electrons operate) more than the atomic spatial arrangement. Quantum dots are probably the most well-known quantum structure in nanoparticles. The interesting thing about quantum dots is that they are electronically constrained in all three dimensions, so they are classified as zero-dimensional materials.



Quantum dots are an interesting class of materials, and many of them are functional (usually customizable). They are semiconductor in nature and are often referred to as artificial atoms because they have discrete electronic states - that is, states that can only receive certain amounts of energy (unlike bulky materials). Quantum dots are now considered in many applications, such as electronic nano-memory. Quantum nanowires, otherwise known as nanowires, are a one-dimensional structure of electrically conductive electrons enclosed in two dimensions. They are known as "wires" because the movements of the electrons are restricted in a transverse direction, that is, along the wire, making them work like ordinary wires. They are used to transmit electrons in electronic nanostructures, but only certain energy levels can be used because their bands are also discrete. One of the main advantages of quantum wires is their high image ratio, in which the length of the wire can be up to 1000 times its width. In the internal structure of nano-quantum electronic memories, electrons can tunnel and connect nano-potential holes to form a network supercharger. These supergrids contain nanobonds that travel the length of the connected potential hole, meaning that electrons can move easily between the holes, enabling the super lattice to have excellent charge-carrying and in some cases superconducting properties. To show himself. This produces nano-quantum memory.

Nano Memory Moulcolar Book



Author : Dr. Afshin Rashid