Review of: "the structure of a nanotube, which is a thousand times more than copper, and the metal nanotube is capable of carrying an electric current with a density of cm/A, and these characteristics have led to the use of this material in the manufacture of electronic devices"

George Atkinson
Ontario Science Centre

Potential competing interests: No potential competing interests to declare.

the structure of a nanotube, which is a thousand times more than copper, and the metal nanotube is capable of carrying an electric current with a density of cm/A, and these characteristics have led to the use of this material in the manufacture of electronic devices such as CMOS (semiconductor) transistors. to be Carbon nanotubes have been proposed as a replacement for silicon in the MOSFET transistor channel. Nanotubes can solve some problems of reducing the length of the channel in the transistor, such as electron tunneling from the inside of the channel or from the gate to the inside of the channel.

Nanotubes other than CMOS nanotransistors in making gauges and actuators; Supercapacitors are also used in many other industries. The main problem in the application of nanotubes is mainly that they must be used lying on the surface in order to be able to bond them and establish a metallic connection to achieve CMOS transistor behavior. This is while the nanotubes grow vertically. In addition, there should be the possibility of precise control over the characteristics of each nanotube as well as its growth location and length. They will increase the speed of integrated electronics as much as possible. In nanoelectronics circuits, especially RF and microwave blocks, very high-speed switches are needed. Usually, the transistors with records of very high speeds are 2 and inhomogeneous bipolar MOSFET transistors and high electron mobility, up to about 600GHz and 750GHz.

References

1. Lei Choe. (2024). Review of: "The field-effect tunneling transistor nMOS, as an alternative to conventional CMOS by enabling the voltage supply (VDD) with ultra-low power consumption.". Qeios. doi:10.32388/z3oxov.
2. Afshin Rashid. (2024). Review of: "transistor nMOS (with ultra-low power consumption, energy-efficient computing, during the sub-threshold range)". Qeios. doi:10.32388/1a4jb.


8. Chad Allen. (2024). Review of: "FinFET nanotransistor, the reduction of scale causes more short channel effects, less gate control, an exponential increase in leakage currents, severe process changes, and power densities". Qeios. doi:10.32388/h3qk7b.


26. Afshin Rashid. (2024). Review of: "In general, an electrical nano-biosensor consists of an immobilized static biological system (based on their own built-in immobilized static biological system)", Qeios. doi:10.32388/pq6ho0.


29. Prienna Radochevich. (2024). Review of: "Block nanolithography Oriented copolymer is a combination of top-down lithography and the bottom-up self-organization of two polymers to produce high-resolution nanopatterns over large areas", Qeios. doi:10.32388/axnexa.


31. Lola Carterr. (2024). Review of: "Electron beam nanolithography provides the possibility of precise control of nanostructure features that form the basis of various device technologies", Qeios. doi:10.32388/dx3eyk.

32. Lola Carterr. (2024). Review of: "CP materials are able to provide sensitive and rapid responses to specific biological and chemical species", Qeios. doi:10.32388/nseza9.

33. Lola Carterr. (2024). Review of: "So far, arrays of electrostatic nanocapacitors cannot store much total energy because they are too small", Qeios. doi:10.32388/csrr0u.


35. Mesina Farfan. (2024). Review of: "The ultra-thin carbon lattice is capable of transporting electrons with coordinated spin over longer distances and spinning for longer periods of time than any other known material at room temperature", Qeios. doi:10.32388/u9m7vv.

36. Sara Santos. (2024). Review of: "Magnetic nanowires such as cobalt, nickel, iron and alloys can be made by electroaccumulation and spontaneous accumulation on anodic aluminum oxide mold, and the magnetic properties of cobalt nanowire arrays such as coercive force", Qeios. doi:10.32388/v713es.