Review of: "The bias voltage is applied to the graphene transistors in such a way that it always operates in its "active" region, that is, the curved or active linear part is used for the output characteristics"

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The bias voltage is applied to the graphene transistors in such a way that it always operates in its "active" region, that is, the curved or active linear part is used for the output characteristics. Graphene, which consists of only one carbon atom, can be used to create multilayer graphene field-effect transistors that consume less energy and take up less space. Graphene is a semi-conducting material with zero gap and not suitable for logic circuits, but using technology, they create different forms of this material that have different gaps. Graphene strips, multilayer graphene and graphene grown on different transistor layers are such forms.

In the nano transistor structure, the electronic quantity that is more easily available is the ionization potential, and the ionization potential is greater in the size of the small grains of the nano structure (smaller particles), that is, as the size of the particles increases, their ionization potential decreases. Finds.

An increase in the surface-to-volume ratio and changes in geometry and electronic structure have a strong impact on the chemical interactions of matter, and for example, the activity of small particles changes with changes in the number of atoms (and thus the size of the particles). Unlike today's nano-transistors, which behave based on the movement of a mass of electrons in matter, new devices follow the phenomena of quantum mechanics at the nano scale, in which the discrete nature of electrons cannot be ignored. By reducing all the horizontal and vertical dimensions of the transistor, the electric charge density increases in different areas of the nano-transistor, or in other words, the number of electric charges per unit area of the nano-transistor increases.

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.
Qeios. doi:10.32388/12sgvj.
7. "Afshin Rashid. (2024). Review of: "FinFET nanotransistor downscaling causes more short channel effects, less gate control, exponential increase in leakage currents, drastic process changes and unmanageable power densities."
Qeios. doi:10.32388/hx4oyk.
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.
Qeios. doi:10.32388/3md1n.
doi:10.32388/0od0gl.


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.


28. ^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/a0nexa.

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/a0nexa.


33. ^Afshin Rashid. (2024). Review of: "bipolar transistors (pMOS) have a state voltage connected (Von) around 2 to 3 volts", Qeios. doi:10.32388/c8zgvw.