Review of: "bulk samples of single-walled carbon nanotubes as well as for multi-walled single nanotubes"

Brouno Omania

1 Research England

Potential competing interests: No potential competing interests to declare.

The results of the laboratory experiments also indicate the existence of this feature in bulk samples of single-walled carbon nanotubes as well as for multi-walled single nanotubes.

The thermal conductivity of single carbon nanotubes has been measured by computational methods. One group was single-walled carbon nanotubes that were placed together as a mass, and the thermal conductivity value of their collection was obtained. One group was multi-walled carbon nanotubes that were placed separately from each other. The thermal conductivity of this batch of nanotubes was investigated separately. They obtained the value of thermal conductivity of more than 011 mK/W for single-walled carbon nanotubes. According to this, the thermal conductivity of multi-walled carbon nanotubes individually is more than 300 mK/W.

Since the structure of carbon nanotubes has different values for the production and reproduction of nanotransistors at different temperatures, it is shown as a function of temperature and in the form of T(λ). Starting from low temperatures and gradually increasing the temperature, it can be seen that the value of T(λ) reaches a maximum value of 111.3 mK/W near the temperature of 011 K (this maximum can be seen as a peak in the diagram) and then decreases with increasing temperature.

The maximum value of T(λ) which has been observed so far in the investigations, is related to a specific thermal nanotube sample that was measured at a temperature of 010 K. This value is equal to 00111 mK/W. Therefore, the value of (T) λ of carbon nanotube in its maximum is comparable to the highest value of (T) λ that has been measured so far. According to the presented diagram, even at room temperature, the thermal conductivity of carbon nanotubes is very high and is equal to 0011 mK/W.

In the methods of reproduction of nanotransistors and nanotubes with the synthesis of carbon nanotubes based on catalytic chemical vapor deposition (CCVD), it includes the decomposition of a carbon source on small metal particles or clusters as a catalyst.
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:10.32388/23oxov.


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.


