

CARBON NANOTUBES IN SOLAR PANEL TECHNOLOGY

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ABSTRACT:

This paper gives an idea about the advancement in the solar panel technology. It presents the use of carbon nanotubes or graphite instead of silicon in solar panels. These carbon nanotubes are used for photo conversion and a counter electrode construction, which are placed in liquid electrolyte through a redox reaction. The silicon semiconductors in a solar cell are geared toward taking infrared light and converting it directly to electricity. A new nano-material being developed by a group of researchers spread across the country could act as a “thermal emitter,” making solar power significantly more efficient by scooping up more of that wasted energy. The infrared part of light is relatively easy for conventional high-efficiency solar cells to convert to electricity. A thermal emitter isn’t a parallel system for deriving electricity directly from the sun’s rays meantime, the visible spectrum is lost as heat and longer wavelengths pass through unexploited. A new nano-material act as a thermal emitter being developed by a group of researchers spread across the country making solar power significantly more efficient by scooping up more of that wasted energy. The infrared part of light is relatively convenient for conventional high-efficiency solar cells to convert to electricity, and the thermal emitter perspective works within that framework. For deriving electricity directly from the sun’s rays, thermal emitter is not a parallel system. Instead, this is an application or so called thermos photovoltaic principals. Researchers have estimated a theoretical 80% efficiency rating — much higher than the mid-30s where most silicon-based solar panels are stuck.

Key Words: Solar panels, Carbon nanotubes, Photovoltaic principals, Thermal emitter, SWNT, MWNT.