

New material can generate solar energy by transforming both light as well as heat



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A research organization has developed a new hybrid nanomaterial that can convert light & heat both into electricity. By increasing the number of the micro-devices on a chip, this technology might offer a new and efficient platform to complement or even replace current solar cell technology.

The new material was synthesized by combining copper sulfide nanoparticles and single-walled carbon nanotubes (SWNTs) and then used in a prototype thermoelectric generator that the team hopes will eventually be able to produce milliwatts of power.

Compared to SWNT thin-film devices, their team says that new thin-film structure increases light absorption by as much as 80 percent in laboratory tests, making it a more efficient generator. Additionally, copper sulfide is much cheaper and more readily available than the noble metals used in similar hybrids.

Lab tests also showed that the optical and thermal switching effect exhibited by the hybrid nanomaterial thin-film devices could be enhanced by up to 10 times by using asymmetric light illumination and thermal radiation rather than symmetric illumination.

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