KREATYWNY ENERGY POLSKA

The black technology of solar power generation

Overview

Researchers have developed a solar thermoelectric generator that is 15 times more efficient than the most advanced devices currently available. By enhancing heat absorption and dissipation. New, high-efficiency STEGs were engineered with three strategies: black metal technology on the hot side, covering the black metal with a piece of plastic to make a mini greenhouse, and laser-etched heat sinks on the cold side. Credit: University of Rochester / J. Adam Fenster Researchers have. Their pioneering research, recently published in Light: Science and Applications, introduces an innovative integration of femtosecond laser-based spectral engineering alongside sophisticated thermal management techniques.

The black technology of solar power generation

Black metal could give a heavy boost to solar power generation

His lab's innovative black metal technology design helps create a STEG device 15 times more efficient than previous devices, paving the way for new renewable energy technologies.

Scientists Turn to 'Black Metal' to Make Ultra-Powerful Solar

Scientists from the University of Rochester have invented a new 'black metal' solar thermoelectric generator (STEG) etched with femtosecond laser pulses that is 15 times more efficient ...

Black Metal Boosts Solar Power Generation , Technology News , Nov ...

The researchers engineered the high-efficiency STEGs with three strategies. First, on the hot side of the STEG, they used a black metal technology developed in Guo's lab to transform regular tungsten to ...

Solar Power Reimagined: New "Black Metal" Device Generates 15x ...

For the hot side of the device, they applied a specialized black metal technology developed in Guo's lab, which modified ordinary tungsten to selectively absorb light at solar ...

Black Metal Could Significantly Enhance Solar Power Generation

Essentially, the engineered black metal acts as a highly selective solar absorber, efficiently converting sunlight into thermal energy localized on the hot side of the STEG, thereby ...

Scientists supercharge solar power 15x with black ...

A Rochester team engineered a new type of solar thermoelectric generator that produces 15 times more power than earlier versions.

Laser-blasted 'black metal' could make solar technology 15 times more

The breakthrough lies in a unique, laser-etched "black metal" developed by researchers over the past five years,

which they now hope to use in solar thermoelectric generators (STEGs).

Black Metal Significantly Boosts Solar Power Generation , Technology

Researchers have engineered a solar thermoelectric generator that is 15 times more efficient than current state-of-the-art devices, by using "black metal" technology in combination with ...

Black Metal Technology Delivers 15x Boost in Solar Power Efficiency

Using his lab's black metal technology, the new design produces a STEG device that is 15 times more efficient than earlier models, opening the door to new possibilities in renewable energy.

Laser-etched 'black metal' boosts solar power generation by 15x

This "black metal" absorbs more than 80 percent of sunlight while losing far less heat as infrared radiation. The result is a

surface that soaks up solar energy like a sponge while holding onto ...

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