**TECHFLASH** 



## MorphoColor® - Coloured PV modules

The energy transition across the world is driving robust demand for solar panels. Alongside high energy yields, aesthetics and acceptance are also increasingly important factors. To accommodate these trends, a team of researchers from the Fraunhofer Institute for Solar Energy Systems ISE has developed an innovative solar facade element that can be incorporated into a building's exterior practically invisibly and without any significant loss of efficiency. With the development of MorphoColor® coating technology, the experts have made an important contribution to the expansion of integrated photovoltaic systems.

Photovoltaic systems are not a popular design feature among architects and building owners. Researchers from <u>Fraunhofer Institute for Solar Energy Systems ISE</u>, Freiburg, set out to change that by developing aesthetically pleasing coloured solar panels that feature angularly stable, saturated colour with minimal loss of efficiency, so they can be integrated practically invisibly into building exteriors.



The innovative solar panels can be manufactured in various colours.

## Inspired by Morpho Butterflies.

There are two crucial factors with solar panels for building-integrated photovoltaic use: First, they need to behave optically like a traditional coloured element, and second, they should still be able to generate as much power as possible. To meet this challenge, the researchers looked to nature for inspiration - and found it in morpho butterflies. "The 3D photonic structures on a morpho butterfly's wings allow for an intensive, angularly stable coloured impression thanks to a fundamentally low-loss interference effect". Following this biological model, the experts from Fraunhofer ISE succeeded in using a vacuum process to apply a similar surface structure to the back of the glass covering their solar panels. Depending on the fine structure, this method can be used to produce glass coverings in various colours.

The plug-in solution can be used with all standard commercially available solar technologies as well as those foreseeable in the future, plus it can be manufactured industrially at low cost. Cell and panel technologies with a uniform appearance are an especially good fit. These include rear contact solar cells and the shingle matrix technology also developed at Fraunhofer ISE — an assembly method reminiscent of a brick wall.

The MorphoColor® trademark is already registered in the EU, Switzerland, China, the United States, Japan, and South Korea. Integration of solar panels into vehicles is another promising field of development. *>>CLICK HERE<< to receive more info on this TechFlash.* 

Kindly get in touch with us if you are interested in this technology or require further information. Thanks and Regards,

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