

# PRESS RELEASE

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## Colored PV modules with Fraunhofer ISE Patent Achieve Market Maturity

Colored building-integrated photovoltaic (PV) modules that replace roof or façade elements can be an attractive alternative to the traditional blue-black solar PV installations. Until recently, colored modules came with considerable efficiency losses. Now, there is a solution available in the PV market: colored PV modules that deliver at least 90 percent of the electricity yield of an ordinary module. Megasol Energie AG, a module producer from Switzerland, holds a license for the MorphoColor® technology which was developed and patented by Fraunhofer Institute for Solar Energy Systems ISE. Visitors at the BAU in Munich can view green and blue PV modules with the MorphoColor® technology at the Fraunhofer Building Innovation Alliance booth, and gold, silver and bronze-colored PV modules at the booth of Megasol Energie AG, from 17 to 22 April 2023.

“Transferring Fraunhofer ISE’s developments to industrial applications is always our overriding goal,” says Prof. Dr. Andreas Bett, institute director at Fraunhofer ISE. “That’s why we are so pleased to have achieved this together with Megasol Energie. Now the construction industry will have access to highly efficient, colored PV systems. The MorphoColor® technology also opens up new possibilities for buildings with historical protection status.”

Megasol Energie AG is a Swiss manufacturer of solar modules and photovoltaic systems, with a particular focus on the growing segment of building-integrated PV. Megasol Energie AG combines new color options with a variety of design dimensions. Glass surfaces, or structures can be freely selected, as well as all sizes and shapes, allowing even façades with complex grid structures to be turned into solar power plants. “A solar module with “Solarcolor Morpho” colors achieves 94 percent of the efficiency value of a conventional black module. That’s phantastic,” says Michael Reist, Head of Public Relations at Megasol Energie AG.

“The particular color structure was inspired by the Morpho butterfly, whose intense blue wings create an angularly stable color impression over a wide range,” says Dr. Thomas Kroyer, co-inventor and developer of the MorphoColor® technology at Fraunhofer ISE. “With this technology, we can create a multitude of colors while allowing most of the sunlight to pass through the PV module glass. The underlying solar cells are hardly visible at all.”

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The MorphoColor® layer consists of a photonic structure in which an interference layer is combined with a geometrically structured substrate in such a way that a narrow-band reflection peak results, yielding maximum results. It reflects a small part of the color spectrum and allows the rest of the sunlight to pass through virtually unhindered. The colored coating therefore only reduces efficiency by 10 percent relative or less, compared to an uncoated module. MorphoColor® coated panes can also be used for tinted building-integrated solar thermal collectors or also photovoltaic-thermal (PVT) collectors.

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**Further information:**

Fraunhofer Building Innovation Alliance at BAU 2023 in Munich:

[https://www.bau.fraunhofer.de/en/press\\_events/press/pr\\_20230124\\_special-show-bau2023.html](https://www.bau.fraunhofer.de/en/press_events/press/pr_20230124_special-show-bau2023.html)

SOLARCOLOR line by Megasol Energie AG:

<https://megasol.ch/en/technology/design/>

Research on building-integrated photovoltaics at Fraunhofer ISE: <https://www.ise.fraunhofer.de/en/functional-printing.html>

<https://www.ise.fraunhofer.de/en/business-areas/energy-efficient-buildings/building-envelopes/building-integrated-pv-bipv.html>

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**Fig.:1** Facade-integrated PV installation with green MorphoColor® panes at the Center for High-Efficiency Solar Cells at Fraunhofer ISE.  
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The **Fraunhofer-Gesellschaft** based in Germany is the world's leading applied research organization. Prioritizing key future-relevant technologies and commercializing its findings in business and industry, it plays a major role in the innovation process. A trailblazer and trendsetter in innovative developments and research excellence, it is helping shape our society and our future. Founded in 1949, the Fraunhofer-Gesellschaft currently operates 76 institutes and research units throughout Germany. Over 30,000 employees, predominantly scientists and engineers, work with an annual research budget of €2.9 billion. Fraunhofer generates €2.5 billion of this from contract research.



**Fig.:2 Demonstrator module with MorphoColor® coating of the type displayed at BAU 2023, in green and blue. The three colors made for a PV efficiency value of 94–96 percent compared with the black reference module without color coating.**

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