

Pressemitteilung

Fraunhofer-Institut für Solare Energiesysteme ISE

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Custom-Colored Modules Increase Acceptance of Photovoltaics on Buildings

The Institute of Psychology at the University of Freiburg and the Fraunhofer Institute for Solar Energy Systems ISE conducted a joint study on the social acceptance of building-integrated photovoltaics (BIPV). The conclusions showed that the acceptance of integrated photovoltaics in urban areas is generally very high and that PV on modern buildings is viewed more positively than on historic buildings. The study also showed, however, that when PV modules are colored to match the building's roof or façade so that they are practically invisible, then the social acceptance is increased to the point where no difference is detected between the different building types.

The study, which was conducted as part of the livMatS Cluster of Excellence at the University of Freiburg, analyzed two surveys: An online survey based on photos and a survey in presence where differently colored PV modules with MorphoColor® technology were shown. "An important finding of the study is that the social acceptance of PV systems depends on the type of building and visual impression. These two factors weigh much more heavily than personal variables such as personal values, political attitudes or environmental concerns," says Angela Zhou, master's student at the University of Freiburg and lead author of the study.

"The study provides initial insights into the social acceptance of PV systems on and around buildings," adds Andreas Wessels, PhD student at Fraunhofer ISE and co-author of the study. "It confirms that the acceptance of PV systems can actually be increased through good visual integration with colored modules, especially for historic buildings."

It can be concluded from the study that for existing buildings it makes more sense to select colored PV modules that blend homogeneously into the building's appearance rather than using PV as an architectural detail. Therefore, it is important to offer a wide range of aesthetically different PV modules to match the different existing buildings. Building-integrated photovoltaics on new buildings was not examined in the study, so this restriction need not apply here.

Today, 75 percent of installed PV is located on buildings. The market for photovoltaics on buildings is growing continuously and holds great potential. Around 400 gigawatts-peak of installed PV power will be required by 2045 for the energy transition in Germany to succeed. With a technical potential of around 1000 gigawatts-peak, photovoltaics on buildings can make a significant contribution to the decarbonization of the building sector and built infrastructure – without taking up additional land area.

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Originalpublikation:

<https://www.sciencedirect.com/science/article/pii/S0160791X24002732?via%3Dihub>

URL zur Pressemitteilung: <https://www.ise.fraunhofer.de/en/press-media/press-releases/2024/custom-colored-modules-increase-acceptance-of-photovoltaics-on-buildings.html>



It has been shown that a homogeneous PV integration increases their acceptance.
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