

IN SHORT

- **Applied research** in colored building integrated photovoltaics (**BIPV**).
- Innovation through **transdisciplinary** approach and knowledge transfer.
- **Holistic perspective** merging energy, technology and design aspects.
- **Tangible results** that public can understand through “look and feel”.

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Innovation in building integrated photovoltaics needs technology, but also design and social acceptance.

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STORY



Research in photovoltaics is traditionally about new material technologies for better energy efficiency. Some HSLU researcher do it differently and aim at **improving architectural design** for better social acceptance. The transdisciplinary and knowledge transfer approach makes the difference:

- The starting point of the research is to present solutions that are not only technologically ready, but also **market-ready**. Social aspects must also be taken into account, e.g. likes or dislikes of the people towards BIPV. Builders and architects don't want ugly black PV modules on their buildings, they want a variety of colors and patterns to choose from.
- The quest for market-readiness brings **academia, industry and public together**. Engineering researcher collaborate with design students for developing design proposals, the public votes the best design proposals, the industry manufactures functional prototypes, and the building owner showcases the prototypes on their buildings for public “look and feel”.
- The picture above shows such prototypes as squared PV modules with color-patterns, resembling various effects of ageing and weathering on glass. Each PV module is connected to a monitoring system, and the public understands that while some 20% of the electrical efficiency is lost (due to color and pattern intervention), colored PV modules can offer a design variety catering to individual preferences.

Fostering knowledge transfer from research to public for their participation and decision making is essential for such transdisciplinary projects and hence HSLU has created the office of Knowledge and Innovation Transfer initializing and supporting transdisciplinary projects.

IN FOCUS



DISCO; HSLU.

<https://www.empa.ch/web/s604/einweihu-ng-bipv-fassade>
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