



“On the fly alterable thin film solar modules for design driven applications”

SolarDesign addresses the obstacles we find when trying to use Photovoltaics as a decentralized source of energy in different products, by the development of novel solar cell materials, manufacturing processes and supportive actions to improve communication in the design value chain.

The demand for aesthetically integrated photovoltaic materials is increasing steadily in many industries. A growing number of designers, architects and industrial manufacturers across the world share a common interest in using photovoltaics as a decentralized and sustainable source of energy in their product designs. And tools should support the designer in conceiving, planning and producing the solar design products.

Scientific and Technical Objectives

A flexible scribing and printing technology that **allows producing** a given photovoltaic module **according to specific design requirements** “on-the-fly”.

Novel materials for the underlying flexible solar cell technology to **extend the design related degrees of freedom** and to **optimize the materials used for integrative solar applications**.

Novel materials for **satisfying design related requirements** on solar module level. Focus will be laid on **materials for the electrical conducting front grid** to allow a high design freedom of **patterns** and **color variations**, as well as using of **different novel encapsulants** allowing custom designed optical appearance.

A **methodological toolbox** to **provide design rules** for the best solar cell super-structure and module design layout for a given application by using numerical modelling and simulation.

New design oriented applications for **decentralized solar power generation** ranging from low-power demand to high power applications.

Monitoring and validation will enhance performance and reliability of the solar integrated products.

Expected Impacts

Developing markets such as **sustainable housing, temporary building structures, outdoor activities, electro-mobility and mobile computing** will drive the demand for decentralized, attractive energy solutions.

For solar powered products, customizable shapes, sizes, colors, transparencies or specific electrical properties are required. Therefore a new breed of solar technologies, developed by SolarDesign, is necessary.

The novel photovoltaic materials and tools will be demonstrated in **design prototypes** ranging from solar charged mobile devices, solar lighting, building integrated PV to full integration in smart materials.

At a glance

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Duration: **36 months**
Start: **Jan 2013**
Total Cost: **3,712,054.93 M€**
European Commission Contribution: **2,716,423.0 M€**



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