NUMBER
02
JANUARY
2014

The Newsletter of SolarDesign Project

SolarDesign

www.solar-design.eu

Contact us:

Coordinator: Nadja Adamovic

Organization: TUW

Phone: +43 1 58801 76648

Fax: +43 1 58801 36698

Nadja.adamovic@tuwien.ac.at

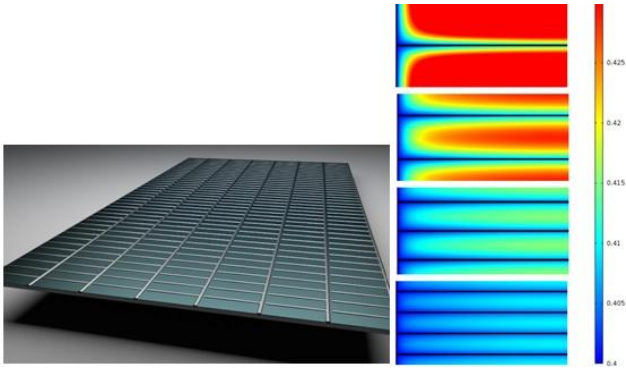
On-the-fly alterable thin-film modules for design driven applications

The SolarDesign consortium is delighted to bring to your attention the latest news about SolarDesign Project and Photovoltaics.

Design of thin film PV Modules to meet desired shape and customized electrical specifications.

Despite the recent developments, PV today has standardized production processes and product lines that do not respond to varying customer requirements. In fact, conventional photovoltaic modules are in most cases not suitable for the integration into surfaces of facades, roof tiles or electric devices due to their stiffness, appearance and electrical constraints. Nevertheless the demand for aesthetically and flexible integrated photovoltaic materials is increasing steadily in many industries. Developing markets such as sustainable housing, temporary building structures, outdoor activities, electro-mobility and mobile computing will drive the demand for decentralized energy solutions. In order to create attractive solar powered products customizable shapes, sizes, colors, transparencies or specific electrical properties are required because they have a decisive influence on the acceptance on the market. Therefore a new breed of solar technologies is necessary.

The aim of SolarDesign Project is to assess this complex task and create a stronger link between the technology-



Optimization of the front grid for CIGS flexib Optimization of the front grid for CIGS flexible modules (TU Vienna, Austria)

Vienna University of Technology has two important roles related to the modeling and simulation within the SolarDesign Project. The first one is to develop a useful and precise model of solar modules as a ready-to-use material which meets the stated market needs. Electrical characteristics and overall performance of the solar cells are also to be improved by the means of simulation of the real-world physical processes in the solar cells,

.

thus identifying the possibilities for performance improvements. This way a tool will exist to enable the easy implementation of thin-film photovoltaic modules into a wide range of applications, leading to the more energy sustainable systems.

SolarDesign environment characterization

In the framework of the WP5 (dissemination & exploitation) a bibliometric & market study has been launched by the Institut National de l'Énergy Solaire (INES). First analyses show that the topic of flexible PV modules has seen a growing interest since the mid-2000s in terms of patents' filing, with a strong involvement of China and Korea in the recent years. Another interesting fact to highlight is the 40% forecasted market growth for BIPV applications according to several reports.

Students interested in SolarDesign

Alessandro Caviasca is a teacher at the **University of Pompeu Fabra- ELISAVA**-*Escola de disseny, engenieria i arquitectura* in BARCELONA teaching about the *Integration of solar energy in architecture and product design*.

"In the last workshops and lessons realized in ELISAVA, students demonstrated a strong interest in photovoltaic technology applied to product and buildings. The works developed by the students show that a wide range of new and innovative products can be conceptualized and designed. But today these students, the future generation of designers, architects and product engineers still need to decode the laws of integration with standard PV technology due to its strong geometrical and electrical constraints that cannot permit freedom of design. This lack of freedom is difficult to assume for a designer: it is already demonstrated that the lack of versatility of a certain technology could discourage its implementation in real application for the market.

SolarDesign "on the fly" technology, due to its versatility, could really help to create a new generation of revolutionary design-driven solar products and energy saving smart buildings; in consequence it will open in a short term new tendencies in industrial design and architecture."

SolarDesign project participated in the energy forum 2013

Ludwig Kronthaler and Laura Maturi (EURAC) participated in the Energy Forum-Advanced building skins 2013 from the 5th to the 6th of November 2013 in Bressanone (Italy).

The main objective of the Energy Forum conference is to contribute to a multidisciplinary, integrated planning approach to sustainable buildings, and to create a dialogue among architects, engineers, scientists, energy managers and manufacturers with the aim of reducing energy consumption while improving the comfort and health of building occupants by exploring strategies for saving energy and presenting new ways of integrating renewable energy technologies into multifunctional building elements to achieve affordable nearly zero energy and green buildings.

During the conference Mrs. Maturi gave an oral presentation entitled "Active building facades: concepts and experiences", where she also introduced to the broad public the main goals of FP7 European Project SolarDesign, especially the project objectives regarding the development of a BiPV prototype.

The Energy Forum 2013 was a good opportunity to present SolarDesign project and to exchange information and ideas with a targeted audience working in the integrated PV and building envelope field.

SolarDesign's software tool as a case study in the sustainable innovation 2013 conference

GAIA, on behalf of SolarDesign, attended the **Sustainable Innovation 2013 Conference** at the **University of Creative Arts in Epsom, UK**, where a case study about the user oriented software tool which is being developed within SolarDesign Project was presented.

The case study, "User Oriented Software Tool for Design Driven Applications on Thin-Film Solar Modules", was presented in the "Design Strategies, Methodologies and Tools" panel which was moderated by Professor John Wood.

The case study analyzes the co-creation user-driven methodology followed in the design and development of the software tool and the LCA model followed to identify the different concepts and parameters to be taken into consideration.

NEWS and EVENTS

Finally, we are pleased to inform you about the latest news and events related to SolarDesign Project and Photovoltaics:

- **Third Consortium and Steering Board Meeting** took place on the 11th and 12th of December 2013 at Institute National de l'Énergie Solaire (INES), Le Bourget du Lac, France. The partners had the pleasure too to participate on the 10th of December in an Exploitation Strategy Seminar (ESS) held by Mrs. Tunde Kallai, an appointed EC senior expert, with the objective to define the key exploitable project results, related risks and potential obstacles, enhance the team to deal with IPR and standardization issues, and also to improve economic, financial and entrepreneurial attitudes of the participants.

  More information here.

- **4M2013.** W. Brenner, TUWien, attended the 4M2013 conference and presented SolarDesign: Nadja Adamovic et al.: EU FP7 Project On-the-fly alterable thin-film solar modules for design driven applications. In: S. Azcarate, St. Dimov (eds.): Proc. of the 10th Int. Conf. on Multi-Material Micro Manufacture ISBN: 978-981-07-7247-5 , doi: 10.3850/978-981-07-7247-5_410

  More information here.

You can find more information related to the project news at http://www.solar-design.eu/news

UPCOMING EVENTS

SolarDesign 4rd Project Meeting will take place in June 2014 at Accademia Europea Bolzano (EURAC) in Italy.

SolarDesign Project has received funding from the European Union's Seventh Framework Programme (FP7/ 2007- 2013) under grand agreement nº 310220. Theme: NMP.2012.4.0-1