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Save the Date

SolarDesign Project at Intersolar Europe

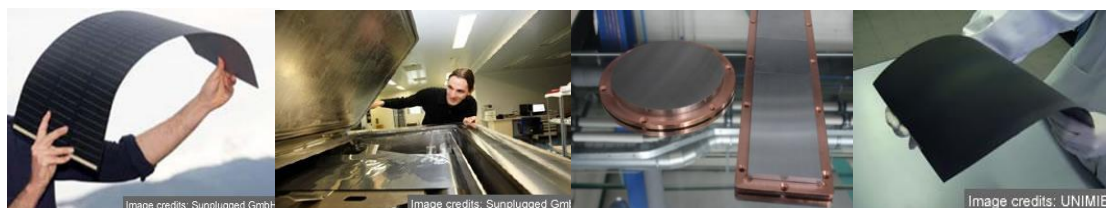


SolarDesign partners have the pleasure to invite you to **the project workshop** that will take place at the international event **Intersolar Europe** on the 10th of June 2015 in Munich. Intersolar Europe is the world's leading exhibition for the solar industry and its partners, and it will take place from the 10th to the 12th of June 2015.

SolarDesign partners will present the latest project results on the **design driven innovations for Project integrated PV and Building Integrated PV applications**.

For more information and free registration you can contact:

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Development of laser structuring processes for CIGS Thin-Film edge deletion

A laser structuring process is developed for the edge deletion of CIGS thin-film solar cells on glass and polyimide substrates by Munich University of Applied Sciences.

The TCO and the CIGS layers in the edge area of the solar cell are removed in this step. Then the solar cell is covered with a laminate layer which protects it against environmental influences. The edge deletion and the lamination avoid humidity diffusion through the CIGS layer into the cell and the corresponding derogation of the cell efficiency. For the edge deletion an electro-optically Q-switched 880 picosecond IR laser is used. In order to determine suitable process parameters, the pulses per position (PPP) and the fluence are varied. A process window between fluences of 0.8 and 1.5 J/cm² and a PPP of 1.6 to 6 is found. The occurring ablation mechanism is identified as lift-off process (see figure 1) allowing extremely efficient material removal. Removal rates down to 4 J/mm³ are determined for a fluence of 2 J/cm² and a PPP of 0.8.

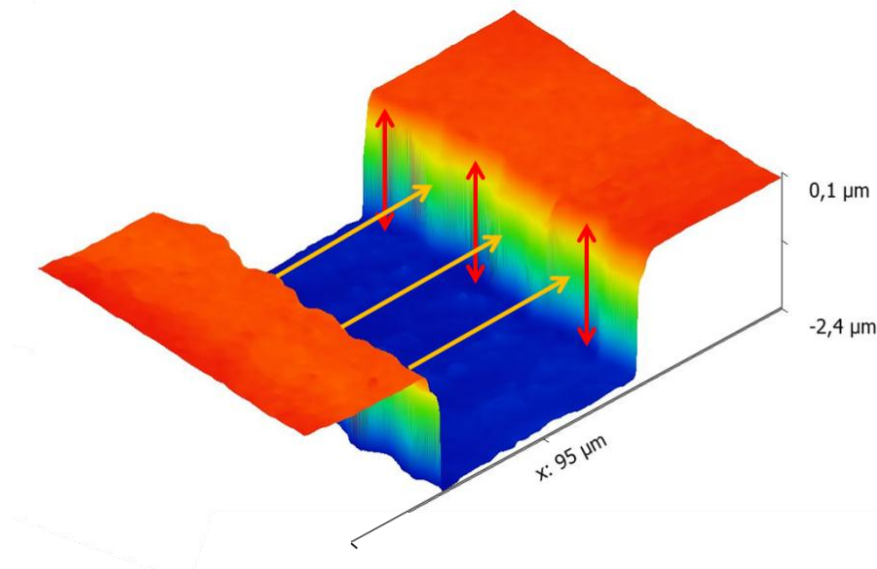


Figure 1 Confocal microscopy image showing the lift-off ablation of the TCO and CIGS layer for the edge deletion process of a CIGS thin film solar cell. Laser parameters: $\lambda = 1064 \text{ nm}$, $\tau = 880 \text{ ps}$; PPP 4; $F_0 = 0.8 \text{ J/cm}^2$. (Munich University of Applied Sciences).

Roll-to-Roll prototype for up scaled hybrid solar cell process successfully commissioned!

Sunplugged successfully installed a hybrid sputtering and evaporation prototype which is based on the CIGS formation process initially developed by University Milano Bicocca.

The full-scale prototype is able to produce the absorption layer endlessly on flexible substrates up to a maximum of 320 mm.

Running in full production mode the prototype is able to produce about 10 running meters per hour.



Figure 2 Hybrid sputtering and evaporation prototype based on the CIGS formation process process initially developed by University Milano Bicocca (Sunplugged)

SolarDesign's standardization activities

Dissemination, implementation and standardization must be fully coordinated as they represent two sides of the same plan for success. Standards are promising and vital tools of disseminating SolarDesign's research to the market.

From the begin the consortium has decided to integrate standardization into the project's efforts as

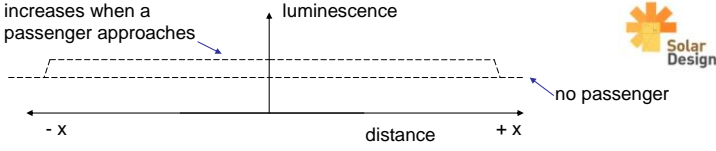
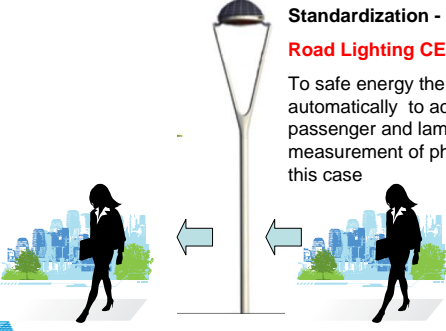


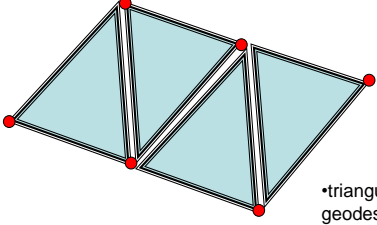


- SolarDesign's R&D results need to be compatible and interoperable with other technologies
- And the consortium has to ensure reliability and safety.

Standardisation within SolarDesign's Task 5.3 aims at providing a bridge connecting research to industry by promoting innovation and commercialization. This will comprise circulating of innovative measurement and evaluation methods, implementation of new processes and procedures.

Integrating photovoltaics in architecture and industrial design is in its infancy and taking into account different European perspectives is crucial for its success. This is especially true for Building Integrated PV where legal conditions are differing from one European country to another. By seeing design from a stylish or sensory perspective regional characteristics exist.

The SolarDesign consortium identified where standards can benefit the project. The consortium already contributed to standardisation bodies and by this ensured that results are widely accepted and available. To guarantee good agreement within the consortium all documents of standardization relevance are jointly prepared by the partners.

2014 the consortium issued proposals to European Standardization bodies concerning

Street Lightening	PV in buildings
 <p>increases when a passenger approaches</p> <p>luminescence</p> <p>distance</p> <p>- x</p> <p>+ x</p> <p>no passenger</p> <p>Standardization - proposal 1 Road Lighting CEN/TR 13201-1,2,3,4</p> <p>To save energy the luminescence is adjusted automatically to actual distance between passenger and lamp – required: calculation and measurement of photometric performance for this case</p>  <p>PV driven street lamp with proximity sensor</p>  	 <p>•triangular PV modules for geodesic structures</p> <p>Standardization - proposal 2:</p> <p>Photovoltaics in Buildings DRAFT prEN 50583</p> <ul style="list-style-type: none">•shape and dimensions•mechanical and electrical interfaces•test method for PV performance covering low irradiation conditions•dismounting of integrated PV modules  

NEWS and EVENTS

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

- **SolarDesign Fifth Consortium and Steering Board Meeting** took place on the 11th and 12th of December 2014 at Innsbruck, Austria. Consortium partners presented their achievements during the last six months of the project and some prototype integration's meetings took place in parallel as well. The next project meeting will take place in June 2015, coinciding with Intersolar Europe 2015.

[More information here.](#)

