



SOLARONIX

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Abstract – Solaronix's Organic Solar Cell Activities

Since 1994, Solaronix concentrates on the development and production of specialty chemicals tailored for the dye solar cell field. In particular, we produce ruthenium based sensitizers and nanocrystalline titanium oxide pastes formulated for various deposition and printing techniques. Additives, such as electrolytes, ionic liquids and substrate coatings to serve the research and development community are completing our product range.

Recently, upscaling of the manufacturing methods of these specialty products allowed volume supplies to industrial customers.

We are developing the dye solar cell and its related production techniques based on screen-printing. In particular, we investigate module fabrication, either using the monolithic approach (requiring only one glass as substrate), or the "W-Module" technique allowing a semi-transparent and bifacially lit solar panel (co-developed with ECN and Shell). Modules of up to 50 x 50 cm have been fabricated. So far, efficiencies of up to 6.5 % (active area) have been achieved on 10x10 cm monolithic modules.

The FP6-IP project FULLSPECTRUM focuses on molecular based concepts for solar generation, and we are taking care of "Flat Plate Concentrator" device assembly and their stability testing using dedicated equipments.

Our task in the FP6-IP project NAPOLYDE is centered on the supply of formulated nano-TiO₂ products to the partners, and the industrialization aspects of certain dye solar cells of small surfaces but in large volumes.

In the earlier FP5 project Euro-PSB, we have developed a flexible dye solar cell based on a titanium foil as electrode, able to recharge a thin lithium polymer battery. In the framework of the FP6 coordinated action program OrgaPVNet, we have an affiliation as partner of the Swiss project thinPV, focusing on thin film PV, including polymer and dye sensitized systems.

During the national program "TopNano21", we have been partner together with Prof. Michael Graetzel's laboratory at the EPFL to develop a solid state dye solar cell based on the organic semiconductor spiro-OMeTAD. Efficiencies of up to 2.7 % were achieved on small test cells using gold electrodes and SnO₂:F coated glass substrates produced in-house.

Recently, we have developed a novel light source system allowing solar simulation and light soaking on large areas (> 1 m²). The leading thin film PV manufacturers now use these equipments to qualify their products.