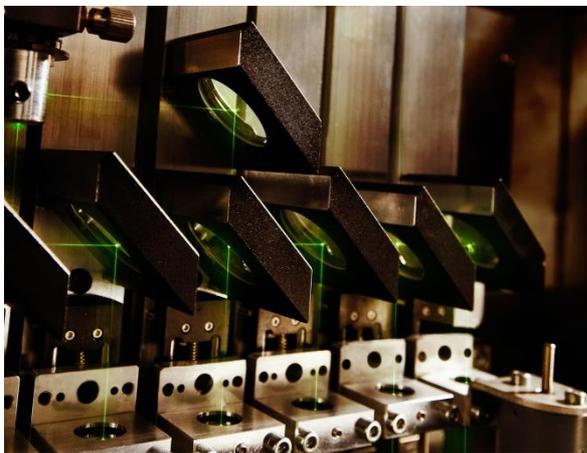


European research team achieves milestone in the laser structuring of organic solar cells

Dresden, Germany - December 19, 2017 – As part of the ALABO project, a research team has been working on the foundations for the next generation of organic solar cell encapsulation technology for the past three years. This month the research project has reached its completion, and it delivers impressive results.



Highest precision is required with laser structuring - © Heliatek GmbH

In order to interconnect solar cells directly produced on barrier films, the requirements call for a very precise and detailed, but more importantly very "gentle" laser structuring. The biggest challenge within the complex laser process is to selectively ablate certain layers of the OPV layer stack in the nanometer range, without sacrificing the functionality of the – directly underlying and

ultra-thin – barrier layer. The performance of the barrier has a direct effect on the life cycle of the solar cells.

The main objective of the ALABO project was to develop an industrial laser process that could achieve that. In addition to process development, the feasibility of machine solutions for production was considered as another important research topic, as well as the progress on accelerated barrier measurement methods.

A team of engineers and scientists from Holland, France, Poland and Germany worked together in an interdisciplinary manner to achieve the successful realization of this project. The results met the highest project expectations. "We were able to prove that the existing layer structure can be processed with industrial-grade laser systems. By changing certain parameters in processing, we were able to achieve damage-free structuring on the barriers. The findings from the ALABO project are a door opener for roll-to-roll direct encapsulation. Only in conjunction with these excellent



partners, was Heliatek able to develop such a complex laser process.", says Merve Anderson, project manager of Heliatek GmbH.

If the direct encapsulation is later transferred to production, it can significantly increase the service life of solar cells, and at the same time reduce the volume of functional films itself. The higher efficiency in use of materials saves additional resources in the already energy-efficient production of solar cells, ultimately making the product cost effective, as well.

The basis for the success of this project was the concentrated research expertise of all participating organizations. Involved in the ALABO research project were the HOLST Center, the research institutes CNRS, CEA and Fraunhofer IWS Dresden, as well as the companies Sorter, 3D-Micromac AG and Heliatek GmbH.

About ALABO

The joint project "Advanced Laser Ablation on Barrier films for Organic and Large Area Electronic Devices (ALABO)" has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No. 644026.

More information: www.alabo.eu

About Heliatek

A technology leader in organic electronics, Heliatek develops, produces and distributes large-area OPV solar films. The business model is to supply HeliFilm® products to partners in the industry, such as construction and building materials industries, as well as for integration into façade and roof elements. The ready-to-use solar solution HeliSol® is aimed at the renovation market, and can easily be applied to existing building exteriors. Heliatek currently employs a total of approximately 110 people in Germany at its sites in Dresden and Ulm.

The research and development work, as well as the installation of the production technology, were supported by the Free State of Saxony, the Federal Republic of Germany and the European Union.

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