Fraunhofer ISE presents worldwide largest screen-printed dye solar cell module.

The dye solar cell module is still a young photovoltaic technology. However, in the last few years, this technology has started to extend beyond the laboratory level. The ultimate aim is the successful integration of these solar modules into the building facade. A large challenge in the development of new photovoltaic technologies is the transfer from the laboratory to the industrial level. As an important step in this direction, researchers at the Fraunhofer Institute for Solar Energy Systems ISE have succeeded in producing the worldwide first dye solar cell module on a continuous substrate glass with dimensions of 60 x 100 cm^2. It has been shown, that an integrated series connection of cells is possible on a module area of 60 x 100 cm^2 using screen printing technology. This avoids a complex external inter-connection of the submodules. With this development, a decisive step towards cost-effective up-scaling has been achieved and paved the way for the transfer to the industrial level.

By Andreas Hinsch





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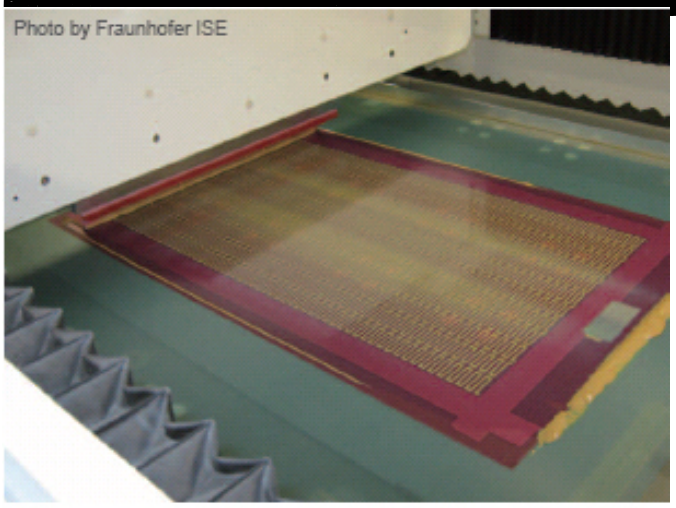


Figure 2. Screen printing of the TiO, photoelectrode layer in a large area dye solar module as developed at Fraunhofer ISE

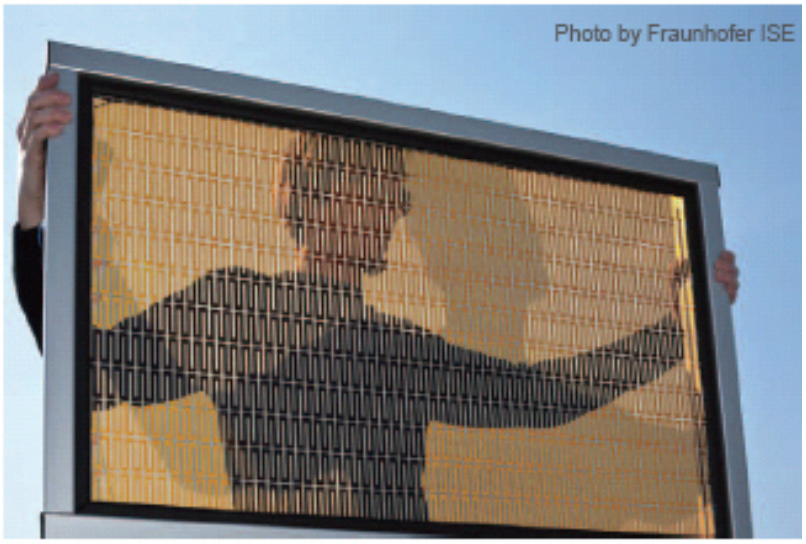


Figure 3. Prototype of a working 60 cm x 100 cm dye solar cell module manufactured at Fraunhofer ISE by fusing of two screen printed glass substrates. The module is internally 12-fold electrically interconnected in series.



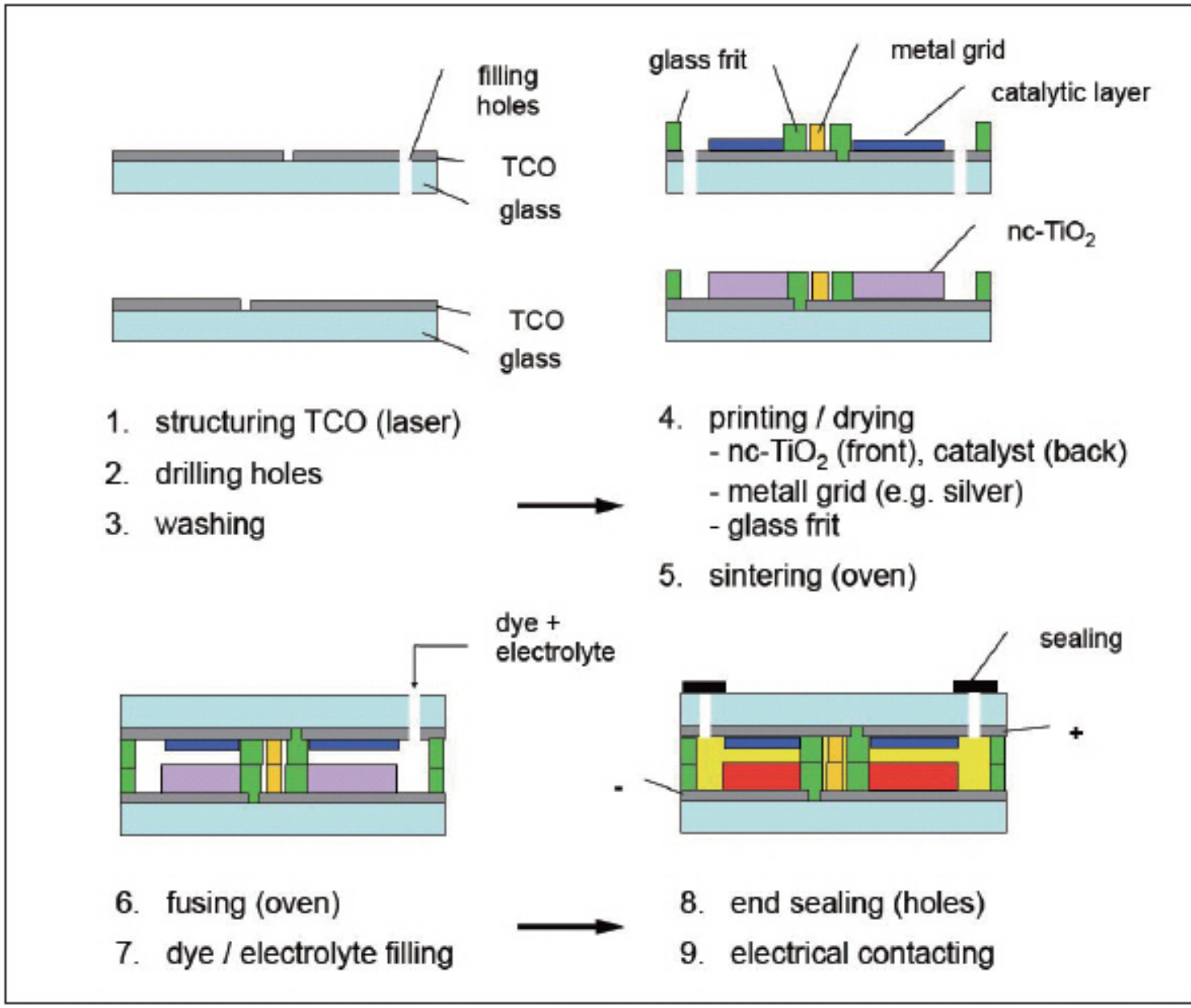


Figure 5. Manufacturing scheme for dye solar cell modules as developed at Fraunhofer ISE. The cross section at the electrical interconnect is shown. (Source: Fraunhofer ISE)

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