Research findings in solar cells will have an impact on solar panel industry

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University of Luxembourg's Laboratory for Photovoltaics has established a method to observe and prevent solar cell degradation before solar cell production is finished, which has implications for the solar cell manufacturing industry since chemical damage to solar cells can occur quickly.

Solar panels are capable of converting light energy from the sun into electrical energy because they contain solar cells – the "power generators " responsible for the energy in solar panels. Thin film solar cells have a coating that is responsible for absorbing the sun's energy, but this film can be degraded during the production process.

"A thin film solar cell is a stack of several layers. The main one is the layer that absorbs the light and transforms it into electricity. If these absorbers are not processed immediately they lose part of their ability to convert light energy," says researcher David Regesch of the Laboratory for Photovoltaics, Physics Research Unit at the University of Luxembourg.

Researchers measured the light that is released by a solar cell when a laser is shone on it, and found that the degradation happens within the first few minutes. They also found that the degradation is reversible and prevented by quickly placing another layer on the solar cell. This makes the solar cell stable.

In the photovoltaics industry, solar cells are processed as fast as possible

for economic reasons, and now scientists have shown a physical reason why this process should be completed quickly. This study was recently published in Applied Physical Letters and chosen as a research highlight.

More information: Regesch, D. et al. Degradation and passivation of CuInSe2. *Appl. Phys. Lett.* 101, 112108 (2012) . apl.aip.org/resource/1/applab/ … 12108_s1?bypassSSO=1

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