Outdoor Operational Stability of Indium-Free Flexible Polymer Solar Modules Over 1 Year Studied in India, Holland, and Denmark

Angmo, Dechan; Sommeling, Paul M.; Gupta, Ritu; Hösel, Markus; Gevorgyan, Suren; Kroon, Jan M.; Kulkarni, Giridhar U.; Krebs, Frederik C

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Dechan Angmo, Ph.D.,
Department of Energy Conversion
Technical University of Denmark

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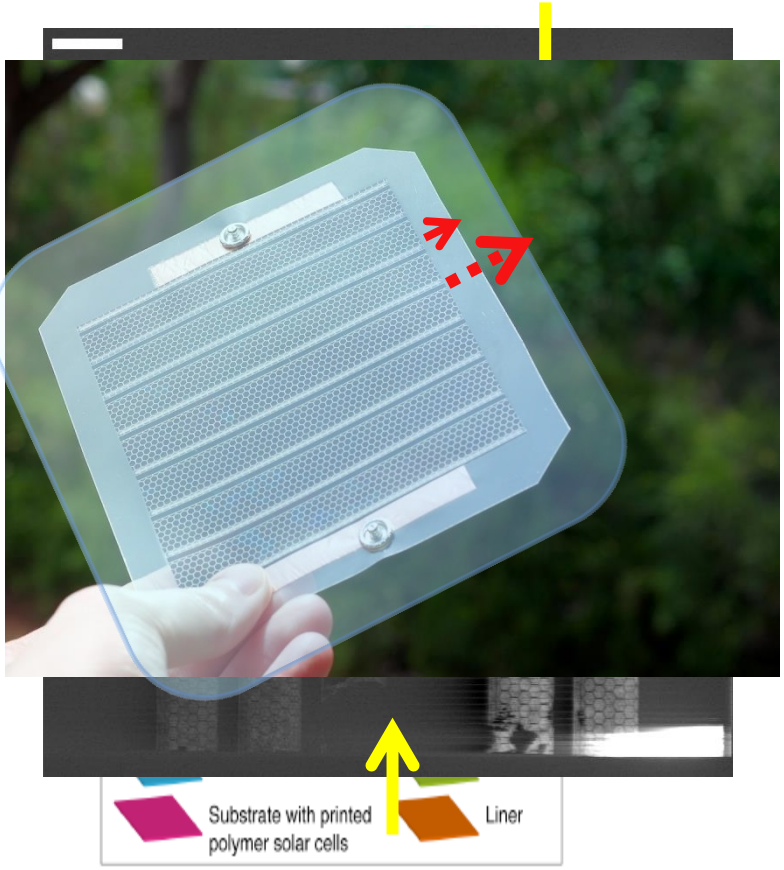
In Summary



- Low-cost encapsulation method is demonstrated.
- The method is roll-to-roll compatible.
- Decay in photovoltaic is due to localized defects
  - the edge cross, contacts, and uneven adhesive thickness→ O_2 and H_2O infiltration
  - results in PEDOT:PSS degradation/delamination
  - Photoxidation of photoactive polymer→not the main cause of degradation
- Simple design changes →performance is dramatically enhanced ($MPP_{t=0}$ equal $MPP_{t=1\ year}$)
  - Defects due to edges and uneven adhesive thickness is eliminated
  - Defects due to contacting method persist

Hösel, M., Søndergaard, R. R., Jørgensen, M. and Krebs, F. C. (2013), Adv. Eng. Mater., 15: 1068–1075.

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Contributors

Paul M. Sommeling and Dr. Jan M. Kroon
ECN Solar Energy, Petten, Netherlands

Dr. Ritu Gupta, Prof. Giridhar U. Kulkarni
Chemistry and Physics of Materials Unit and DST Unit on Nanoscience
Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India

Dr. Suren A. Gevorgyan, Dr. Markus Hösel, Prof. Frederik C. Krebs
Department of Energy Conversion and Storage, Technical University of Denmark, Roskilde, Denmark

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