

“AIT’s experience with SOLAR-ERA.NET”

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SPRINT-CELL

High-efficiency bifacial PV Modules and Systems for flat roofs

- SOLAR-ERA.NET 3rd Call
- Development of kesterite $\text{Cu}_2\text{ZnSnS}_4$ (CZTS) devices by an innovative printing technology utilising ink solutions containing pre-synthesized CZTS powders (in line with PV 3.1 call task)
- Targets/Approach:
 - Sulphide powder development
 - Formulation of a chemically stable ink solution
 - CZTS films deposited by printing technology via optimized process parameters
 - Working CZTS cell demonstrating an appreciable cell efficiency (> 6%)
- 36 months (start 04/2016), costs ~ € 0.47 Mio, funding ~ € 0.36 Mio
- Partners:
 - AT: AIT (Coordinator), Frimeco Produktion GmbH, PMT Powder Processing GmbH
 - GB: Printed Electronics Ltd.

PEARL TF-PV

Performance and Electroluminescence Analysis on Reliability and Lifetime of Thin-Film Photovoltaics

- SOLAR-ERA.NET 4th Call
- Increase long term thin film (TF) PV plant operating efficiency, by the development of a state-of-the-art imaging-based quality control (preventative maintenance) procedure and system for fast inspection of TF modules
- Targets/Approach:
 - Development of a database of EL images of failure mechanisms
 - Development of standards to measure output power of new and field-exposed TF modules
 - Development of a fast, quantitative, imaging based method for outdoor analysis of TF modules/strings
- 36 months (start 02/2017), costs ~ € 2.7 Mio, funding ~ € 2.2 Mio
- Partners:
 - AT: AIT, Crystalsol GmbH
 - DE: FZ Jülich (Coordinator), PI Berlin, HZB
 - NL: TNO, Solar Tester, International Solar BV, eigenenergie.net, Straightforward, TU Delft

NEXT-FOIL

Next generation conductive solar foil for flexible photovoltaics

- SOLAR-ERA.NET 5th Call
- Production of a solar foil which can be processed rapidly, is roll-to-roll compatible, has lower costs than ITO foil and simultaneously higher performance with respect to transparency, conductivity, mechanical stability and versatility
- Targets/Approach:
 - Development of dielectric/metal/dielectric (DMD) electrodes on PET,
 - Dielectric layers being refractory metal oxides (MoO₃, WO₃ and TiO₂); Metals: Cu or Ag.
 - DMD electrodes have multiple advantages: (a) no substrate heating to achieve high conductivities; (b) mechanically stable (bendable, stretchable); (c) Most materials are more cost-efficient than ITO (MoO₃, TiO₂, Cu); (d) Optically tailorable regarding a desired wavelength window; (e) Design adaptable for use either as anode or as cathode
- 24 months (start 03/2018), costs ~ € 0.9 Mio, funding ~ € 0.6 Mio
- Partners:
 - AT: AIT (Coordinator), Plansee SE
 - CH: Solaronix SA

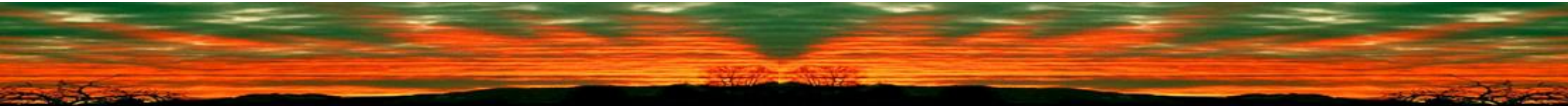
BI-FACE

High-efficiency bifacial PV Modules and Systems for flat roofs

- SOLAR-ERA.NET 5th Call
- Development of optimized bifacial modules and systems for large flat roofs suitable for different regions within Europe (three optimized variations with regard to distance and tilt between modules and reflectors, surface of the reflectors, shading effects, cell spacing, used materials,)
- Targets/Approach:
 - Optimized bifacial modules, systems and manufacturing strategies
 - Optimized performance and characterization measurements
 - New adapted mounting structures
 - Lightweight PV system for flat roofs
- 36 months (start 03/2018), costs ~ € 1.2 Mio , funding ~ € 0.9 Mio
- Partners:
 - AT: AIT (Coordinator), Carinthian Tech Research, PVP Photovoltaik GmbH
 - NL: ECN, Solar Electricity Development B.V., Tempres Systems B.V.

CONCLUSION

- AIT has long and comprehensive experience with SOLAR-ERA.NET
- SOLAR-ERA.NET fosters European collaboration
- SOLAR-ERA.NET projects allow more flexibility compared to H2020
- Contract/ consortium agreement can be difficult
- Problem, if one partner (country) is not funded
- SOLAR-ERA.NET is a very good funding opportunity



THANK YOU!

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