DegradationLab

Consortium

University of Cyprus

AIT Austrian Institute of Technology

imec

Max Planck Institute for the science of light

Project Title: Advanced centre for testing degradation and failures in new and emerging solar cells (INFRASTRUCTURES/1216/0043)

Funding: European Regional Development Fund and the Republic of Cyprus through the Research and Innovation Foundation (2019-2023)

Call: New Strategic Infrastructure Units – Young Scientists ('RESTART Programme 2016-2020)

Project Duration: 31/12/2018-30/06/2023

Lead Partner: University of Cyprus

Republic of Cyprus

European Union
European Regional Development Fund

Structural Funds of the European Union in Cyprus

Research & Innovation Foundation

Main Scope

- To gain a fundamental understanding of failure development and evolution in novel solar cell devices, and
- To find ways to accurately, systematically, and reproducibly study such solar cells/modules assisting in the development of appropriate measurement protocols.

Scientific Objectives

- Investigating degradation mechanisms of different structure perovskites and perovskite/silicon tandems in ambient and laboratory conditions using a combination of advanced techniques.
- Addressing the technical and scientific challenges in indoor and outdoor characterization of perovskite-based cells.
- Investigating carrier dynamics and chemical imaging of perovskite-based PV before and after degradation in an attempt to understand carrier losses and various decomposition products.
- Correlation between microscopic study of failures and the performance degradation of perovskite-based cells.

Main Phases

1. Development of indoor and outdoor infrastructure for testing cell degradation
2. Initial cell performance testing and development of accurate protocols for novel cells
3. Indoor characterization of novel cells using advanced techniques developed
4. Ultrafast and Raman spectroscopy as part of degradation analysis
5. Outdoor testing of novel solar cells

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