University of Cyprus
PV Technology

PRESS RELEASE

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INNOVATIVE RESEARCH BY THE UNIVERSITY OF CYPRUS WINS TOP PRIZE AT THE 29TH EUROPEAN PV SOLAR ENERGY CONFERENCE AND EXHIBITION

A team from the FOSS Research Centre of Sustainable Energy of the University of Cyprus (UCY) has won the top prize at the biggest conference for photovoltaics in Europe, the 29th European PV Solar Energy Conference and Exhibition (EU-PVSEC) which took place between 22 and 26 Sep. 2014 in Amsterdam, Netherlands.

The paper entitled ***"Robust Principal Component Analysis for Computing the Degradation Rates of Different Photovoltaic Systems"*** by Andreas Kyprianou, Alexander Phinikarides, George Makrides and George E. Georghiou has won the best visual presentation award in the field of Operations, Performance and Reliability of Photovoltaics. Considered as one of the main features of the conference, the most outstanding visual presentations have been awarded from over 1500 scientific papers, based on the quality of the contents reported and on the quality of the presentation.

The paper deals with the accurate estimation of the degradation rate of photovoltaic (PV) systems. The gradual degradation of PV is recognized by PV module manufacturers and yet it still remains the most controversial parameter in the operation of PV systems due to the lack of an established definition of PV degradation rate and methodology for its estimation. Most manufacturers guarantee that the performance will not drop below 80 % of the initial performance at the end of the 25 years. This requires a maximum degradation rate of 0.8 %/year which is a very small quantity to estimate due to the uncertainty associated both with PV modules in service and the actual environment they operate. The importance of the work lies in recognizing the dominant features of the performance ratio time series of photovoltaic systems of different technologies and mitigating the effects that the uncertainty component imparts on them, thereby enabling a new definition and estimation of degradation rates.

The award comes at a time where the PV community has started to recognize the importance of multidisciplinary research and concerted effort into the degradation of PV. The Photovoltaic Technology laboratory of the UCY has recognized this gap and has fused its expertise in PV and data science. The team has published numerous papers in this regard which have gained worldwide recognition: a) the nomination for the best poster award for the paper "Comparison of trend extraction methods for calculating performance loss rates of different photovoltaic technologies" at the world's largest PV conference, the 40th IEEE Photovoltaic Specialists Conference and, b) the best poster award for the paper "Robust principal component analysis for computing the degradation rates of

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different photovoltaic systems" at Europe's largest PV conference, the 29th European PV Solar Energy Conference and Exhibition.

Finally, through this award it has been proven that the quality of the work has attained high international standards and is capable of contributing to the global PV sector. This, coupled with the recent funding secured by the European Regional Development Fund and by the Republic of Cyprus for the project "Reliable Assessment of Degradation in new thin-film photovoltaic technologies", signifies the recognition of the work undertaken in Cyprus.

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