PRESS RELEASE

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INNOVATIVE RESEARCH BY UNIVERSITY OF CYPRUS PHD STUDENT WINS BEST STUDENT PAPER AWARD AT THE WORLD’S LARGEST CONFERENCE FOR PHOTOVOLTAICS

PhD student Alexander Phinikarides of the FOSS Research Centre of Sustainable Energy and the PV Technology Laboratory of the University of Cyprus (UCY) has won the Best Student Paper Award at the world’s largest conference for photovoltaics, the 42nd IEEE Photovoltaic Specialists Conference (PVSC) which took place between 14 and 19 Jun. 2015 in New Orleans, LA, USA.

Out of more than 1500 submissions in 11 different technical areas, the paper entitled “Estimation of Annual Performance Loss Rates of Grid-Connected Photovoltaic Systems Using Time Series Analysis and Validation through Indoor Testing at Standard Test Conditions” by Alexander Phinikarides, George Makrides and George E. Georgiou won the best student paper award in the area of System Performance Modelling, based on the technical contribution of the work in the field, the quality of the oral presentation and the student’s role in the field of research.

The paper presents and validates the time series analysis approach developed by the authors at the PV Technology laboratory for the estimation of annual degradation rates of grid-connected photovoltaic systems using measurements of the actual operation. Time series of Performance Ratio, from grid-connected PV systems operating side-by-side since 2006 at the PV Technology test site of the University of Cyprus, were analysed using seasonal decomposition methods in order to extract the trend and calculate the linear performance loss rate. The results of this analysis were validated through an extensive indoor testing campaign, where all modules from the PV systems under test were dismounted, tested indoors under Standard Test Conditions in a solar simulator and imaged with electroluminescence in order to calculate the linear capacity degradation rate and detect defects not visible with the naked eye. Comparison of both methods has shown close agreement between the time series analysis approach and the indoor testing approach, for PV arrays with no significant faults. The major advantage of the time series analysis approach is that accurate and reliable performance degradation rates are estimated without disrupting the normal operation of the systems, allowing better lifetime prediction, modelling and energy yield forecasting.

This award represents the latest proof that the work done on the degradation of PV at the PV Technology Laboratory of the University of Cyprus results in creating cutting edge research with international impact. The
team has published numerous papers on degradation which have gradually gained worldwide recognition in the two largest conferences for PV through 1) the nomination for the Best Poster Award at the 40th IEEE Photovoltaic Specialists Conference (PVSC) in Denver, Colorado in 2014, 2) the Best Poster Award at the 29th European PV Solar Energy Conference and Exhibition (PVSEC) in Amsterdam in 2014 and 3) the Best Student Paper Award at the 42nd IEEE Photovoltaic Specialists Conference (PVSC) in New Orleans, Louisiana in 2015.

The team will strive to take advantage of the momentum it has generated to set up further collaborations with international research centres in order to bring more exposure to the research done at the University of Cyprus and allow further funding opportunities, knowledge exchange and experience working in international teams for more students.

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