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Welcome from PEARL PV Chair
Angèle Reinders & Vice Chair David
Moser

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WG1 Seminar: 22 October 2018
Training School: 23-26 October 2018
both hosted by University of Cyprus

Welcome

Welcome to the first biannual Newsletter of COST Action PEARL PV. Since the start of PEARL PV on 5 October 2017 many things have happened that show that we are operating in a vibrant field of research on evaluation of the performance and reliability of PV systems. Our research network grew from 34 colleagues in the proposed network to 67 colleagues at the kick off meeting in Brussels to 117 colleagues in the 2nd meeting in January 2018. At the moment, we have 140 PV experts on board!

All these volunteers from across Europe are involved in 5 Working Groups (WGs) which cover the various topics of PEARL PV. In this Newsletter, you will read about the developments in and updates of these WGs. Further to this, we have scheduled events such as Workshops, Seminars and Training Schools for the duration of the whole Action. As such, we have made a swift start with a promising outlook on the further growth and development of PEARL PV's research network.

Our next events, namely a Seminar of WG1 and a Training School will take place from 22 to 26 October 2018 and will be hosted by the University of Cyprus. The Seminar will focus on "Matching PV data and PV performance research questions". The Training School will offer a diverse program on "Monitoring and simulation of the performance and reliability of photovoltaics in the built environment". More information will be available on our website shortly, (www.pearlpv-cost.eu)

However, for now we ask you to save these dates: 22 to 26 October 2018. Also, we would like to thank you, all volunteering PV experts, for your enthusiasm, efforts and energy to make PEARL PV work! Key to PEARL PV's success will be your responsiveness to requests to contribute to WGs activities. Therefore, please reply to WG Leaders' surveys and questions. It would be great if you could contribute to the Work Plans that each WG is developing by the end of June 2018. Also, please consider signing up for a WG panel that plans to write a review paper this year.

We look forward to meeting you all again in October 2018 in Cyprus. Please continue to do great PV research, it is highly appreciated!

Warm regards,

Chair Prof Angèle Reinders
(*University of Twente*) & Vice
Chair Dr David Moser (*EURAC*)

✦ Introduction

The aim of PEARL is to improve energy performance and reliability of PV systems in Europe leading to lower costs of electricity produced by PV systems by a higher energy yield, a longer life time eventually beyond the guaranteed 20 years as specified by manufacturers, and a reduction in the perceived risk in investments in PV projects. This Action entails the formation of an inclusive network of PV system researchers, data resources that will be analysed by researchers, forming a very large agglomeration of PV systems performance data for Europe, and experts that can include more-nuanced evidence-based reliability in PV system, evaluation methods and simulation and design tools.

Five Working Groups (WG) have been set up which will conduct research using a shared data bank and shared simulation tools and models. An update is given on each WG below.

✦ WG1: PV Monitoring

WG1 will produce a consolidated input-output performance chart that places all annual systems performance in a common format, to determine trends in system performance with (i) type of installation, (ii) components type (PV, inverters etc.) (iii) location, (iv) date of installation. This will be used to produce evidence-based design recommendations based on (i) a systematic categorisation of typical failures, (ii) their statistical distributions and (iii) both estimated and measured their impact on PV performance. At present WG1 consists of 20 members.

Please note that Anne Gerd Imenes of WG1 has recently sent out a survey on PV monitoring guidelines. If you have not done so already, please respond to this survey asap? Thank you!

Chair Dr Wilfried van Sark (*Utrecht University*) & Vice Chair Dr Christian Braun (*FhG-ISE*)

✦ WG2: PV Reliability & Durability

In WG2, the rate of degradation of PV modules and systems will be determined using performance data from WG1. Failure modes will be identified, collated and statistically evaluated. This evaluation will happen in the context of, for example, location, hence irradiation, life time of the PV modules and PV systems, typical components and modes of installation, system operation and integration with the grid as well as maintenance schemes. Currently we have 30 members in WG2.

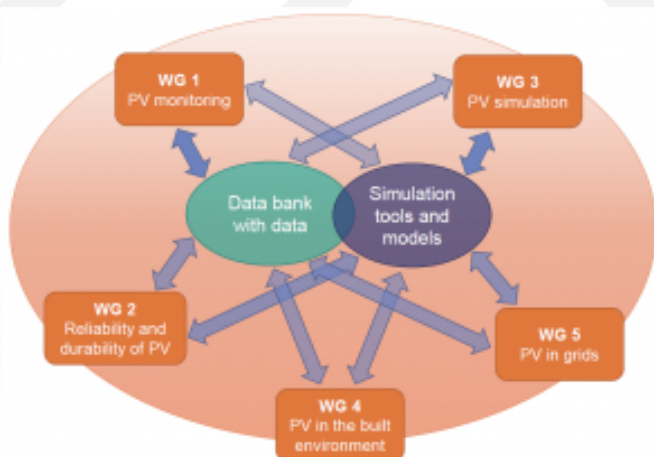
Chair Dr Gernot Oreski (*PCCL*) & Vice Chair Hristina Spasevska (*University of Skopje*)

✦ WG3: PV Simulation

This WG will include PV simulation models by content ranging from (i) fundamental solar cell research, (ii) PV irradiance modelling incl. forecasting and cloud formation, (iii) PV systems (grid-connected, stand alone, and hybrid), (iv) PV in the built environment and (v) PV grid interactions. Distinction will be determined between simulation models that can predict performance on short and long time scales, as well as at smaller BIPV scale and larger solar farm scale. Currently we have about 15 members in WG3.

WG3 will soon be circulating a survey on software usage by the PEARL community to investigate how well the current provision meets need. We would be grateful for a timely response from our members.

Chair Prof Nicola Pearsall (*Northumbria University*) & Vice Chair Prof João Serra (*Universidade de Lisboa*)



❖ WG4: PV in the Built Environment

WG4 deals with the use of PV in the built environment. In particular, with energy performance related issues of the use of PV in buildings or building integrated PV (BIPV), and with the use of simulation models for predicting the performance of PV under the conditions imposed by specific different built environments. This WG is highly multidisciplinary, since knowledge is necessary from different disciplines: architecture, engineering, urban planning, design.

At present WG4 consists of about 25 members.

Chair Dr Alessandra Scognamiglio (*ENEA*) & Vice Chair Dr Francesco Frontini (*SUPSI*)

❖ WG5: PV in Grids

WG5 will contribute towards PV systems that are better integrated into the grid, that perform better and whose operation under real-world conditions is better understood. WG5 will use information from WG1-4 and information from communication with PV experts, electrical engineers, utilities, smart grid experts and meteorologists. Currently we have 24 members in WG5.

Chair Jonathan Leloux (*Polytechnic University of Madrid*) & Vice Chair Marios Theristis (*University of Cyprus*)

❖ Update from Meetings

On 22 January 2018, PEARL PV Management Committee (MC) met in Brussels for their 2nd meeting. There the Actions progress and next steps about STSMs and the work plan of the WGs were discussed. In addition, a Valorisation Panel meeting was organised with an aim to discuss the industry's expectations and obtain feedback directly from stakeholders. Prior to the MC meeting and Valorisation Panel meeting both held on the 23 Jan 2018, parallel workshops were held successfully on the 22 Jan 2018, during which WG leaders and participants discussed the work plan and tasks of the WGs and defined the key research topics. A plenary meeting also took place where the findings from parallel workshops were presented.



❖ STSM Updates

STSMs are Short Term Scientific Missions which are institutional visits aimed at supporting individual mobility, fostering collaboration between individuals. They are primarily intended for PhD students and early career investigators (ECI) to visit other research groups, to acquire new expertise, contribute their expertise to projects and exchange ideas between participating institutions. In the first Grant Period of PEARL PV (November 2017 to April 2018), four STSMs were successfully completed. The second Grant Period (May 2018 to April 2019) will enable 8 STSMs. Institutional STSM offers are most welcome! For detailed information on STSMs,

please visit <https://www.pearlpv-cost.eu/activities/stsm/>, or contact STSM Manager Dr Markus Schubert (University of Stuttgart) at markus.schubert@ipv.uni-stuttgart.de

❖ Publications

PEARL PV members have been and will be presenting at the following conferences:

1. Stability of Emerging Photovoltaics (SEPV2018), 20-23 February 2018, Barcelona (Angèle Reinders)
2. 2018 PV Reliability Workshops, 28 February – 2 March 2018, Denver (Marios Theristis)
3. ETIP PV: Quality and Sustainability of PV Systems Conference, 3 May 2018, Brussels (David Moser)
4. Places and Technologies Conference, 26-27 April 2018, Belgrade (Alessandra Scognamiglio, Francesco Frontini and Aleksandra Krstic-Furundzic)
5. WCPEC-7 (the 45th IEEE PVSC, the 28th PVSEC and the 34th EU PVSEC at once) 10-15 June 2018, Hawaii (Angèle Reinders)
6. 35th EU PVSEC, 24-28 September 2018, Brussels (many members)

More details about these presentations will be visible on PEARL PV's website.

❖ Join Us

For all the latest news check out PEARL PV's website at <https://www.pearlpv-cost.eu>

You can register for participation by this registration form <https://www.pearlpv-cost.eu/about/registration>. Please feel welcome to share this registration form with interested colleagues.

PEARL PV is also visible in social media, namely you can follow PEARL PV by Twitter account <https://twitter.com/CostPearl>

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P E A R L P V

and by our LinkedIn group

<https://www.linkedin.com/groups/8655031>



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Vacancy

Please notice that we have a vacancy for a COST Policy Manager. If you are interested in volunteering please do not hesitate to contact either the Chair or Vice Chair.

Contribute

Thanks for reading, and if you would like to contribute to the next Newsletter please contact Sarah McCormack at mccorms1@tcd.ie before 1 October 2018. Next issue will be published in November 2018.

Acknowledgement

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Partners PEARL PV

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The University of Sheffield.



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Northumbria University
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University of Belgrade



Univerza v Ljubljani



evasa
eva specialist



SUPSI
University of Applied Sciences and Arts of Southern Switzerland



EPFL
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COST Description

COST (European Cooperation in Science and Technology) is a funding agency for research and innovation networks. COST Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation.

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