PV MODULE LIFE TIME FORECAST AND EVALUATION

Training the Next Generation of PV Reliability Experts – New Marie Sklodowska-Curie (MSCA) Project SOLAR-TRAIN

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INTRODUCTION

- SOLAR-TRAIN is a Marie Sklodowska-Curie (MSCA) Innovative Training Network (ITN)
- It brings together 14 international, multi-disciplinary early stage researchers (ESR) to work towards the common goal of »Photovoltaic Life Time Forecast and Evaluation«
- ESRs are hosted by a consortium of eight research institutions, universities and companies with the support of 10 partner organizations in Austria, France, Germany, Italy, Spain, Slovenia and the UK

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Motivation

- Enhance quality assurance in the photovoltaic industry by underpinning science and trained personnel
- Gain a profound understanding of degradation factors and their implication on energy yield over life time
- Reduce costs of energy

Objectives

- Develop novel and validated models for service life time and energy prediction of PV modules and systems.
- Enable a scientific assessment of the triangle quality, durability and costs.

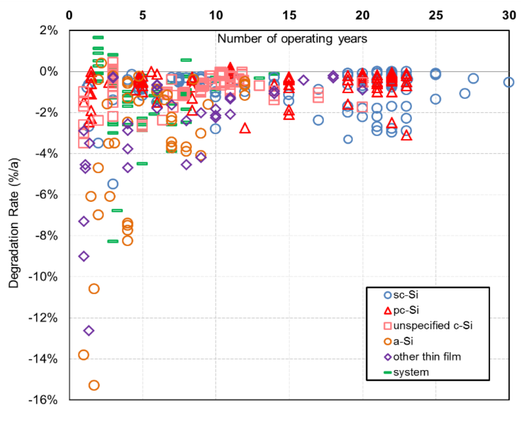

Fig. 1: Annual degradation rates of different PV technologies. Source: Loughborough University

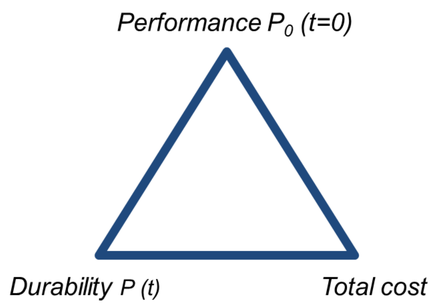

Fig. 2: Interdependency quaility, cost, durability.

14 INDIVIDUAL RESEARCH PROJECTS

Cross-sectoral, multi-disciplinary research

- SOLAR-TRAIN's research evolves in 14 research projects with individual areas of focus
  - (a) climatic degradation factors,
  - (b) system analytics,
  - (c) material (polymer) parameters,
  - (d) service life & energy models,
  - (e) linking production to performance and
  - (f) performance enhancement by improved O&M.

Knowledge beyond mere academia

- ESRs exchange between industry and research institutes, getting to know the requirements of fundamental and applied research as well as the economic implications of their work.
- For a most effective cross-sectoral training, beneficiaries and partners represent the entire value chain, from materials developers / manufacturers through to operators and insurance companies.

PRESENTATION ESR'S

1	Amantin Panos Mehilli	Fraunhofer ISE/Germany
2	Djamel Eddine Mansour	Fraunhofer ISE/Germany
3	Ismail Kaaya	Fraunhofer ISE/Germany
4	Ashenafi Gebregiorgis	Loughborough Univ./UK
5	Nikoleta Kyranaki	Loughborough Univ./UK
6	Francesco Mariottini	Loughborough Univ./UK
7	Stefan Mitterhofer	Univ. of Ljubljana/Slovenia
8	Julián Ascencio Vásquez	Univ. of Ljubljana/Slovenia
9	Aziz Nairi	CENER/Spain
10	Luis Castillon	PCCL/Austria
11	Chiara Barretta	PCCL/Austria
12	Sascha Lindig	EURAC/Italy
13	Nikola Hrelja	EDF/France
14	Guillermo Oviedo Hernández	BayWa r.e./Italy

INNOVATIVE TRAINING SCHEME

Eight basic elements to foster ESR'S technological knowledge and the necessary soft skills for their PhD projects and professional careers in an intercultural and interdisciplinary environment.

1) **Basic Training**
2) **Beginners' Week**
3) **Three Summer Schools**
4) **Online Seminars**
5) **Individual Training Modules**
6) **Action Centered Learning**
7) **Mentoring**
8) **Intersectoral Secondments**

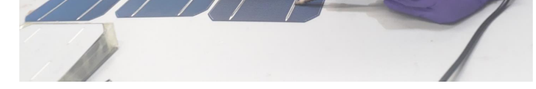

Fig. 4: Summer School 2017 at the University of Loughborough, UK.

Fig. 3: Beginners' Week at Fraunhofer ISE, Freiburg, Germany.

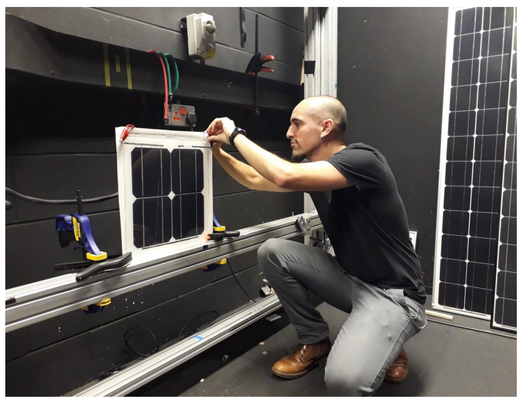

Fig. 5: Module testing during Summer School 2017 at the University of Loughborough, UK.

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