#### Welcome and Introduction to the Workshop

7<sup>th</sup> PVPMC Workshop on **Energy Rating and Module Performance Modeling** Lugano, Switzerland March 30-31, 2017

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# Background

- Welcome to the 7<sup>th</sup> PVPMC Workshop!
- Aim is to bring together international experts on PV performance modeling and monitoring to discuss new trends and present research results to the community.
  - Focus on technical issues. Information transfer between researchers and industry
  - Support discussion, networking, and partnerships
  - Identify gaps and opportunities for improving models (and technology)



#### **Previous and Future Workshops**

2010	Albuquerque, NM
2013	Santa Clara, CA
2014	Santa Clara, CA
2015	Cologne, Germany
2016	Santa Clara, CA
2016	Freiburg, Germany
2017	Lugano, Switzerland
2017 (9-10 May)	Albuquerque, NM





# **PV Performance Modeling Landscape**

PV performance is modeled by following the flow of energy from the sun to the meter.

- Each step in the journey is represented with a model.
- This workshop is focused on PV <u>Module</u> Performance and Modeling
  - Module IV curve as a function of:
    - Irradiance
    - Temperature
    - and other factors....



Stein, J. S. and B. H. King (2013). Modeling for PV plant optimization. <u>Photovoltaics International, Solar Media Ltd. **19th: 101-109.**</u>

### Topics for this workshop



#### Day 1

- Energy Rating
  - IEC 61853 parts 1-4
- PV Module Modeling
  - Model updates and comparisons
- Poster Presentations
- Energy Rating survey results
- Conference Dinner

#### Day 2

- Cell and Module
  Calibration Methods and
  Uncertainties
  - Measurement method uncertainties
- Energy prediction of new technologies or features
  - BIPV
  - MLPE / shading
  - Bifacial

#### Protocols



#### Speakers

- Time limits will be enforced!
- Ensure presentations are uploaded well before your scheduled session.
- We would like to be able to post/share presentation materials after the workshop. If there are restrictions, please notify organizers.

#### Audience

- Silence cell phones
- Return from breaks on time
- Ask questions
- Participate in discussion sessions
- Meet colleagues and network during breaks





# Thank You and Enjoy the Workshop!



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