



*14<sup>th</sup> International Conference on Synthesis,  
Modeling, Analysis and Simulation Methods  
and Applications to Circuit Design*

*12<sup>th</sup> - 15<sup>th</sup> of June 2017, Giardini Naxos - Taormina, Italy.*

## **Special Session on**

# **“Modeling, Diagnosis and Control of Photovoltaic systems: recent advances and perspective”**

## **Call for Papers**

Many studies, as well as on-field verifications, have demonstrated that the energy production of photovoltaic (PV) plants, in many cases, is significantly different with respect to the estimation performed by means of PV models. The causes of such discrepancies are ascribed to several issues: not accurate or not well tuned models adopted for describing the environmental, electrical and thermal operating conditions of the PV fields (e.g. heat, humidity, thermal stress, pollution), non optimal installation (e.g. partial shading), abnormal operating conditions (e.g. defects in the MPPT control or in the power electronics circuit), PV faults, aging, soiling, among others. On the other side, especially for PV plants integrated in smart-grid and microgrids, a reliable estimation of the PV energy production is mandatory in order to optimize the energy management of the grid as well as the sizing of the energy storage systems.

The aim of this Special Session is to focus the attention on new methodologies and tools for accurate PV performance characterization, real-time monitoring, numerical methods for the online diagnosis of the PV panels. Improved models for analysing PV field integrated in smart-grid and microgrids with related power processing system as well as newer MPPT algorithms and control approaches, aimed at improving the energy production, are also considered for this special session.

### **Topics include, but are not limited to:**

- Electrical and thermal models of PV panels.
- Modeling of solar radiation and shadow paths.
- Simulation of PV field operating in mismatched conditions.
- Circuits and methods for online characterization of PV panels and arrays.
- Methods for diagnosis of PV systems and faults identification.
- Photovoltaic monitoring and performance assessment.
- Energy production forecasting of PV systems
- Design tools for sizing standalone- hybrid - grid connected PV systems.
- Energy management of PV systems in smart-grid and microgrids.
- Tools for design and synthesis of power electronics for PV applications.
- New MPPT algorithms for both uniform and mismatched PV arrays.
- New control approaches aimed at reducing the impact of load and environmental perturbation.

## **Important dates**

- |                      |                               |
|----------------------|-------------------------------|
| • 17th February 2017 | Paper Submission Deadline     |
| • 1st April 2017     | Author Notification           |
| • 15th April 2017    | Camera Ready Paper Submission |
| • 15th April 2017    | Early Registration Deadline   |



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## Submission and paper specifications

- all prospective Authors are invited to electronically submit regular papers of their work (paper length up to 4 proceedings pages) through the website of [SMACD 2017](#) (submissions opening: mid December);
- all prospective Authors should prepare the manuscript according to the IEEE double-column conference paper template [style](#): the working language for the conference will be English, which will be used for all presentations and printed material;
- the papers submission will follow the same calendar of regular papers and will be reviewed as the others: Authors should only indicate the SS when submitting their own paper on our submission system (EasyChair).

## Organizers

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