

# R&D Projects



## Project PV-Präzis:

Sponsor:	Bundesministerium für Bildung und Forschung
Schedule:	01.10.2014 – 31.03.2017
Budget:	248.000 €
Partners:	Solar World AG, Calyxo GmbH, IBC Solar AG

### Content:

Outdoor or just onsite analyzes of photovoltaic modules can offer some advantages in comparison to indoor Lab studies. In this way the electrical performance is monitored and logged under natural operating conditions in full range of irradiation and temperature. The entirety of monitored IV data allows deriving low-light characteristics of electric parameters, temperature coefficients and root cause analysis for possible degradation.

We study in this project the so-called self-reference algorithm in order to increase the accuracy of analysis. The improved precision is due to application of effective acting irradiation and effective temperature instead of externally measured data. Effective irradiation is determined in self-referencing scheme: the short circuit current of the module is assigned to the irradiation. This assignment has to be calibrated, preferably at standard test conditions for irradiation which can also performed just onsite.

## PV Lab of University of Applied Sciences Coburg for R&D:

### Technique:

- Flasher for PV module and cell measurements (STC),
- Set-up for angle dependent SR for cells,
- Outdoor-IV-measurement system for modules: field characterization with natural irradiation offer and variable controlled module temperatures (imitation of hot climate conditions and accelerated degradation with temperatures up to 100°C)

### Offers:

- STC- and low-light measurements on solar cells and modules
- Outdoor characterization of modules by variable natural irradiation and temperatures up to 100°C with indoor Lab accuracy
- Assessment and analysis of yield and technical status of photovoltaic systems