

## Motivation

The knowledge of the load is a key factor in the design and reliability assurance of products. Moisture leads to damage in solar inverters and their electronic components. Due to costs or only short time of usage of sensors, these are not used in corresponding applications in order to record the load or the moisture affecting the components. Thus, due to the lack of knowledge of the occurring load in the use by the customer, a stress-appropriate design and efficient planning of tests is not possible.

## Objective:

The determination of the humidity in the solar inverter represents the main objective of the project. Since no appropriate sensors are installed to measure the load or moisture, these are determined by suitable models.

## Approach:

- Analysis of the interactions in the solar Inverter
- Experiments and field measurements to determine the humidity behavior in the solar Inverter
- Modeling of the humidity in the inner space of the inverter by a soft sensor based on the correlation between the available measured parameters, the system configuration and the target variable
- Investigation of model optimizations for the determination of local humidity conditions

