**Thesis Project Offer**

**Joint Research and Education Programme “Palestinian-German Science Bridge PGSB”**

**Forschungszentrum Jülich GmbH & Palestine Academy for Science and Technology**

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**Thesis type**

- ☐ BSc
- ☒ MSc
- ☐ PhD

Intended starting date (approx.): flexible

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**Contact details of supervisor/responsible host at Forschungszentrum Jülich**

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<th>Degree</th>
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**Function* Institute and homepage of institute**

- Group leader
- Institute of Energy and Climate Research
- IEK-5 Photovoltaics

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**University affiliation in Germany**

- RWTH Aachen University

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**Co-Supervisor at Palestinian university (if applicable)**

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**Project description**

Proposal for Master Thesis on Analysis of outdoor performance of photovoltaic modules at high and low irradiance levels

For this project we investigate the outdoor performance of solar modules. We have access to large databases with recorded outdoor data for several solar modules at several locations world-wide. The physical interpretation of such data is usually achieved using a series of models. The models describing the irradiance and temperature dependency of solar modules fail to accurately describe the observed behavior over a large dynamic range. In this work we aim to develop a more detailed framework to describe the irradiance and temperature dependencies more accurately over a wide dynamic range. These extended approaches will be optimized and tested for their predictive power by using the data of the existing databases.

As the project is mostly data-analysis the candidate must be confident in mathematics, statistics and computational scripting languages like Matlab or GNU Octave. Other expertises that are of advantage to this project are:

- Physics/Electrical Engineering
- Photovoltaics
Optimization algorithms (e.g. genetic algorithms)

Date*  Signature*
27.01.2017

* required field