HELMHOLTZ RESEARCH FOR GRAND CHALLENGES

Helmholtz Call for Chinese Applicants Interested in Running for CSC 2021 Fellowship

Helmholtz Centre: Forschungszentrum Jülich GmbH – www.fz-juelich.de

Department/Institute: Institute of Energy and Climate Research, Photovoltaics (IEK5)
https://fz-juelich.de/iek/iek-5/EN/Home/home_node.html

Supervising scientist: Prof. Dr. Uwe Rau/Dr. Kaining Ding

University for registration or for a future degree: RWTH-Aachen

Research Field: Photovoltaics

Position open for: **PhD Student** √ **Sandwich PhD Student**

Title of the research: Flexible and light-weight silicon heterojunction solar modules for vehicle integrated photovoltaics

More description of research topic:

Flexible solar panels are thin, lightweight modules that can be bent and integrated onto non-flat surfaces. Their small weight makes them suitable for application in the transport sector e.g. vehicle, motorhomes or yachts. Silicon heterojunction solar cell has excellent passivation and symmetrical structure, which can achieve >23% photoelectric conversion efficiency even at the wafer thickness of 100 um. Thus, thin silicon heterojunction solar cell is a promising candidate for high efficiency and flexible solar module. The task of this project is the development of flexible and light-weight modules for VIPV (Vehicle Integrated Photovoltaic), including 1) the encapsulation of flexible and light-weight module with different materials, module structures and interconnection technologies; 2) photoelectric performance characterization and optimization of flexible module; 3) the long-term reliability and safety test and evaluation of flexible module; 4) the flexible module integrate for VIPV and maximum power output. A successful PhD thesis will be defended at RWTH Aachen.

Specific requirements:

1. Excellent knowledge in physics, material sciences, electrical engineering or a comparable discipline;
2. Laboratory experience on fabrication of crystalline silicon solar cell and module, in particular silicon heterojunction or module;
3. Know-How in flexible module encapsulation and reliability preferred;
4. Additional skills in scientific English writing and presentation and evaluation tools e.g. Originlab.

Working Place: Forschungszentrum Jülich, Germany (near Cologne)

Earliest Start: September 2021

Language Requirement: Very good knowledge of English language, written and spoken. German language courses are organised in the context of our in-house training program and are free of charge.

Name and Address of the Supervisor: Dr. Kaining Ding, Forschungszentrum Jülich GmbH, Institute of Energy and Climate Research (IEK-5), 52425 Jülich, Germany; k.ding@fz-juelich.de