ISC research
for a sunny future

June 2022

Vacancy

Research for a sunny future!

Shape the photovoltaic technology of tomorrow in a young and highly motivated team.

The **International Solar Energy Research Center Konstanz** is an institute for photovoltaic research founded in 2005 with currently 60 employees. We are a young but experienced team of scientists who have emerged from the photovoltaic group of the University of Konstanz. We have state-of-the-art process and characterization equipment. In national and international research projects, we work together with the leading international institutes and companies in the photovoltaic industry. For more information, please visit www.isc-konstanz.de.

We are looking for a

Ph.D. student (Physics or Material Science)

Contact formation from Ag pastes

m/f/d

The position is initially limited to three years (duration of the project) 75% part time.
You belong to a team of scientists and engineers, who develop cost-effective manufacturing processes for advanced silicon solar cells. As the efficiency increases, the recombination at the metal contacts becomes the dominant loss mechanism in silicon solar cells. With the concept of charge-carrier-selective contacts based on a thin oxide layer and a doped silicon layer, a path for the reduction of the recombination losses has been demonstrated. However, low contact resistance from Ag paste to poly-Si remains a challenge, especially when contacting boron doped poly silicon. The aim of ISC Konstanz is to develop a cost-effective process for the industrial production of TOPCon and IBC cells cell. Within the scope of the doctoral thesis, the contact formation of Ag-pastes, with focus on contacting p+ doped poly layers, is exanimated in depth. The goal is to reveal underlying mechanisms and to find ways to overcome existing limitations.

Your tasks:

- Performance of parametric studies on test structures and solar cells with evaluation of macroscopic device parameters
- Study of contact formation in a test-setup
- Microscopic investigations to reveal the mode of action
- Implementation of results in our Toucan (TOPCon) and ZEBRA (Poly-IBC) solar cells

Your prerequisites:

- Master degree with good grades in physics, materials science, or a related discipline
- Knowledge and practical experience in semiconductor or solar cell technology, especially in high-temperature processes, wet-chemical processing or printing are advantageous
- You are a passionate experimenter and also ready to perform simple repairs and modifications to the test setup.
- Independent and goal-oriented work, high team ability
- A high interest to participate in scientific discourse, in internal discussion and by publishing your results in scientific journals and at conferences
- Fluent in English, spoken and written, at least a basic knowledge of German
- Confident manners and strength in presentations

Given the financial situation, an extension of the employment after completion of the Ph.D. is desired.

The remuneration is based on the provisions of the TV-L. Please send your application with meaningful documents, preferably by e-mail, to the ISC Konstanz e.V., Rudolf-Diesel-Straße 15, 78467 Konstanz; petra.hoffmann@isc-konstanz.de.
For questions, please contact Mr. Jan Lossen: jan.lossen@isc-konstanz.de or 0049 (0)7531 - 36183 - 360.