

## **Anhalt University of Applied Science Ph.D. Position**

### **Numerical simulation and experimental investigations of thermal laser separation processes of thin layers in photovoltaic devices**

The Anhalt University of Applied Science (Department Electrical, Electronic, Mechanical and Industrial Engineering, [www.hs-anhalt.com/departments/dep-6-electrical-and-electronic-engineering-mechanical-engineering-and-industrial-engineering.html](http://www.hs-anhalt.com/departments/dep-6-electrical-and-electronic-engineering-mechanical-engineering-and-industrial-engineering.html)) and the Martin-Luther University-Halle (Department of Physics, [www.physik.uni-halle.de/?lang=en](http://www.physik.uni-halle.de/?lang=en)) will conduct together a joint research project in the area of structuring of solar cells. Up to 8 Ph.D. positions are available within the grant of the German Ministry of Education and Research. The research encompasses the development of new solar cell concepts.

In the Ph.D. position “Numerical simulation and experimental investigations of thermal laser separation processes of thin layers in photovoltaic devices” a new concept of structuring of thin layers should be developed. The concept is based on the guidance of crack propagation due to thermal stress fields in order to electrically separate areas of the layers, like transparent conductive oxide layers, light absorption layers or thin metal layers. The concept of thermal layer separation was already successfully demonstrated on silicon wafers in recent projects.

The general areas of the Ph. D. position include (1) fracture mechanical simulation of crack propagation in thin layers (2) experimental investigations of mechanical and thermo-mechanical crack propagation. The candidate will be part of a research team involving Ph.D. students and scientists from the Anhalt University of Applied Science and the Martin-Luther-University Halle-Wittenberg. Research will be carried out using state-of-the-art experimental and numerical simulation tools. The Ph.D. thesis can be written in German or English.

A master degree in materials science, physics, mechanical engineering, or related fields is required. Preference will be given to candidates with experience in mechanical and fracture mechanical analysis and knowledge of finite element analysis codes like ANSYS or ABAQUS. Strong written and oral communications skills are desirable. The candidate must be willing to work in a team environment on technically and scientifically challenging problems.

Technical questions may be addressed to Prof. Joerg Bagdahn ([j.bagdahn@emw.hs-anhalt.de](mailto:j.bagdahn@emw.hs-anhalt.de))

Applications will be accepted until the position is filled. The position will be offered for 3 years. Salary is based on EG 13-1 TVÖD-L 70 % (2230,63 €/month)

Qualified applicants must apply via E-Mail: [j.bagdahn@emw.hs-anhalt.de](mailto:j.bagdahn@emw.hs-anhalt.de)