



TECHNISCHE UNIVERSITÄT  
CHEMNITZ

# Institut für Physik Physikalisches Kolloquium



**Mittwoch, 25.01.2017, um 16:00 Uhr**

Ort: Reichenhainer Str. 90;  
Zentrales Hörsaal- und Seminargebäude,  
Raum 2/N013

**Prof. Dr. Sven Hüttner**

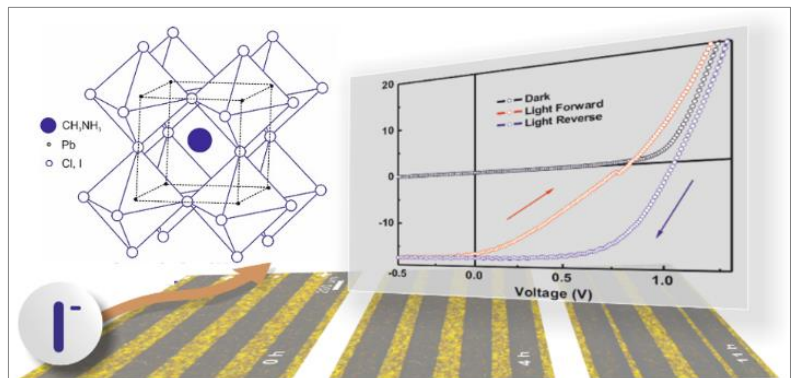
Universität Bayreuth

Juniorprofessur Organic and Hybrid Electronics

## ***Photovoltaics based on Organolead Halide Perovskites***

Inorganic-organic halide organometal perovskites, such as  $\text{CH}_3\text{NH}_3\text{PbI}_3$  are an unprecedented rising star in the photovoltaic area since 2009, owing to its exceptionally high power conversion efficiencies reaching of more than 21% and simple fabrication process. Despite its relatively short history of development, intensive investigations have been concentrating on this material, ranging from crystal structure and photophysical characterization, to performance optimization and device integration, etc. This presentation will give an overview of the fundamental properties of these materials and focus on two aspects – 1) ion migration and 2) disorder.

Applied in photovoltaic devices, organolead halide based solar cells may suffer from hysteresis, that is the difference of the  $I$ - $V$  curve during sweeping in two directions. This behaviour significantly influences the large-scale commercial application and seems to have its origin in ionic migration. This presentation will demonstrate different electrical and optical methods how we analysed the ionic migration. Further analysing the optical properties such its absorbance and emission, gives detailed information of the structural and dynamic disorder in these perovskite materials. It is surprisingly low for a semiconductor, considering its solution and low temperature processing underlining the promising application of these materials in photovoltaic and light emitting devices.



Alle Zuhörer sind ab 15:45 zu Kaffee und Tee vor dem Hörsaal eingeladen.

Informationen zum Vortrag erteilt:  
Prof. Dr. Carsten Deibel, Tel. 0371 531-34878



[www.tu-chemnitz.de/physik](http://www.tu-chemnitz.de/physik)