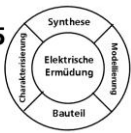


SFB 595



Deutsche  
Forschungsgemeinschaft

DFG

## Sonderforschungsbereich 595 Elektrische Ermüdung in Funktionswerkstoffen



TECHNISCHE  
UNIVERSITÄT  
DARMSTADT

*Kolloquium im  
SOMMERSEMESTER 2011*

**08.06.  
2011**

**Prof. Robert Freer**  
School of Materials, University of  
Manchester

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### **Microstructure Control in ZnO Varistors**

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ZnO ceramic varistors exhibit grossly non-linear I-V characteristics, making them valuable as protection devices in circuits and systems. Based on ZnO with typically five or more oxide additives they develop inhomogeneous microstructures, with back-to-back Schottky barriers at the grain boundaries, giving rise to the unique electrical characteristics.

The presentation will address (i) applications of ZnO varistors, (ii) processing routes for ZnO-based varistors and the control of microstructure by additives, (iii) techniques to investigate the microstructure and electrical properties and the grain scale as well at the bulk scale, and (iv) electrical properties, including aging, and the way microstructure can limit the electrical properties. The talk will end with an introduction to recent work on dielectrics using Atomic-Resolution High-Angle Dark-Field Scanning Transmission Electron Microscopy (HAADF-STEM), which is a powerful tool for investigating structure-chemistry relationships at the atom level. The technique is equally applicable to ZnO materials.

Die Vortrag findet um **16:15 Uhr** im Gebäude der Materialwissenschaften, Lichtwiese, Petersenstr. 23, **Raum 128**, statt.