

**Keramische Werkstoffe und Bauteile**  
**Prof. Dr.-Ing. Kurosch Rezwan**  
**Fachbereich 4 - Produktionstechnik**

**Graduiertenkolleg MIMENIMA**  
**DFG GRK 1860**

Guest Seminar 20.01.2014 / IW 3, room 0330 14.00 – 16.00 Uhr

### **Ceramic Foams: Manufacturing, Applications and Functional Coatings**

**Daniela Böttge**, Jörg Adler, Gisela Standke, Fabian Luthardt

Ceramic foams can be manufactured by different techniques like replica method, direct foaming or pore former burn-out technologies. Especially replica foams made by Schwartzwalder technology with their high open porosity, network-like structure and resulting high surface-to-volume ratio offer promising properties for many process engineering applications, e.g. particle filter, heat exchangers or porous burners.

Today, new challenges in process engineering and environmental technologies require cellular materials that offer functional properties like corrosion resistance, catalytic activity or adhesion characteristics as well as their outstanding structural properties. One option to open up these new application fields is the functionalization of ceramic foams by surface coating.

The presentation will give an overview on the different manufacturing techniques and application fields for ceramic foams. Furthermore a coating technology is presented which is used to stabilize homogeneous, thin layers of active material on the ceramic foam struts without blocking the open-celled structure. Finally, some practical examples and applications for such coatings are described.

#### **Tentative Agenda of the presentation**

- Working Fields Fraunhofer IKTS (short)
- Working Fields Carbide-/Filter Ceramics (short)
- Manufacturing (and Characterization) of Ceramic Foams
  - o Direct Foaming
  - o Replica Method
- Applications of Ceramic Foams
- Coating Technology
- Practical Examples