

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

**Graduiertenkolleg MIMENIMA  
DFG GRK 1860**

02.06.2014 / IW 3, room 0330                      2 p.m. – 4 p.m

Title: Complex Porous Ceramics

Speaker: Professor Dr. Eduardo Saiz

*Chair in Structural Ceramics*

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The development of modern technologies, from tissue engineering, to catalysis or energy storage, requires novel light-weight structures combining optimum mechanical and functional response. This demand is driving the development of new manufacturing techniques to build materials with complex shapes and architectures exhibiting characteristic features from the nano level and up. Ideally, these techniques should be flexible, remain low cost and enable high-volume fabrication. In this presentation will review different approaches for the fabrication of porous ceramics based on particle assembly directed by the use of hard (ice) and soft (emulsions) templates. The effect of particle shape on the assembly process will be illustrated as well as the preparation of “smart” particles able to assemble in response to external stimuli to design a reversible assembly process. Finally the presentation will discuss the extension of these approaches towards the fabrication strong and tough bio-inspired composites.