Institut für Numerische Simulation
Rheinische Friedrich-Wilhelms-Universität Bonn

hausdorff center for mathematics

Einladung zu einem Vortrag im Seminar Materialwissenschaften und Mathematik

Prof. Dr. Dierk Raabe

Max-Planck-Institut für Eisenforschung, Düsseldorf, Germany

spricht zum Thema

Crystallographic grain and interface orientation distributions

Zeit: **Donnerstag, den 16. Dezember 2010, 16.00 Uhr**

Ort: **Wegelerstrasse 6, Seminarraum 5.002**

gez. **Prof. Dr. Michael Griebel**, **Prof. Dr. Stefan Müller**

Abstract: Crystals and interfaces, particularly their crystallographic character and spatial distributions, play important roles in materials science and engineering. For instance effects such as anisotropy, grain growth, recrystallization, segregation, phase transformations, corrosion, deformation, damage and oxidation are essential processes and phenomena that are associated with the crystallographic nature of a material's microstructure. Also, inversely, this relationship opens the gate to the design of specific crystallographic grain and interface orientation distributions with the aim to optimize properties. While the field of the spatially discrete analysis of crystallographic grain orientation distributions (texture) is well established in a parameter space of 3 spatial and 3 orientation coordinates, the recently emerging field of interface orientation distributions is more complex both from an experimental and mathematical point of view as interface orientation distributions are observed and interpreted in a parameter space of 3 spatial, 3 orientation, and 2 interface normal coordinates. The talk gives an overview of the current status in this field and discusses challenges and possible interfacing with mathematics.