



## Vortrag im Gästeprogramm des GRK 2075

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## Crystal Plasticity Simulations: Fundamentals, Implementation, Application

Dienstag, 01.12.2015, 14.00 Uhr  
Institut für Angewandte Mechanik, Raum 008  
Bienroder Weg 87, 38106 Braunschweig

Crystal plasticity simulations aim to account for the crystalline nature of many structural materials in continuum scale simulations. The talk gives a short introduction into the physical mechanisms of plastic deformation. Next the implementation of crystal plasticity into continuum scale boundary value solvers is discussed. While in the past these have been mostly Finite Element solvers in recent years spectral based solvers gained quite some attention. Benefits and shortcomings of the spectral solvers are highlighted. Finally application examples illustrate the whole spectrum of possible applications ranging from single crystal modelling all the way up to component scale simulations and the so called numerical laboratory. As an outlook it is demonstrated how additional fields, such as damage and temperature, can be integrated in the simulations.

#### Kontakt

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