

Master Thesis

Crystal plasticity (CP-FEM) simulation of GJS

Project

High silicon alloyed nodular cast iron is an innovative material offering both, high ductility and strength. Therefore, it is suitable for wind energy applications. The influence of the microstructure on the mechanical properties of the components needs to be accounted for in the design process. A suitable method to investigate effective macroscopic properties is a RVE approach. In this method, the microstructure is modelled as an FE-Model from either 2D or 3D-Data or generated artificially from statistical data. In this work, a CP-FEM code will be applied to the microstructure of cast iron to perform virtual experiments and investigate the constitutive behaviour on the mesoscale.

Tasks

- Model microstructure from EBSD and statistical data
- CP-FEM simulations, virtual experiments

Requirements

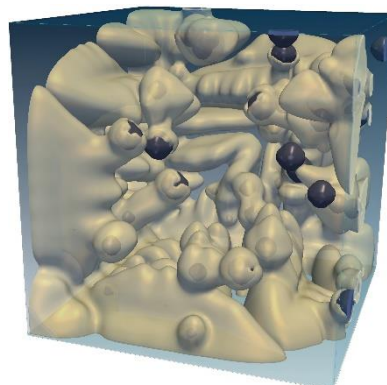
- Self-initiative and independent work
- Highly motivated
- Experience with Python, Abaqus and Linux

We are offering

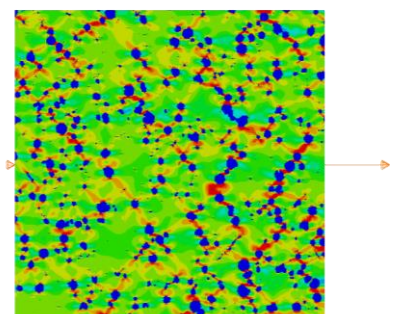
- Very productive work environment and continuous support
- Chance to recommend for a PhD- or HiWi-position
- Coffee, workplace and helpful team

Contact

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2D-RVE