Bachelor / Mini / Master Thesis

Prediction of Shakedown of Microstructures using Stress Compensation Method

The Project

In modern wind turbines, up to 20 tons of cast iron are used per megawatt output. Thus, the development of more powerful wind turbines therefore leads to increasing challenges due to their heavy weight. Thus, the goal of the LeKoGuss project is the development of lightweight design concepts for cast iron components in wind turbines. A special material behavior is shakedown, a state in between linear elastic behavior and ratcheting. Thus, utilizing the shakedown state of a material allows for advanced design concepts.

Aufgaben

- implementation of stress compensation method in abaqus
- comparison of results to existent in house solver
- analysis and quantification of shakedown states of different microstructures

Requirements

- interest in mechanics and micromechanics
- ability to work autonomously
- interest in simulation and numerical modelling
- good foundations in python are beneficial

Why should you apply?

We offer you a comprehensive introduction to the field of micromechanics. Thus, you’ll quickly become a part of the great team developing and validating new microstructural modelling approaches at IWM. Additionally, you’ll be supported to finish your thesis in a timely manner.

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