

Master Thesis

Development of failure models of wood and wood composites

Wood Technology department of the Technical University of Munich is providing the named subject in the form of a master thesis.

Description:

Wood is a bio-material with anisotropic and non-homogenous material properties. Damage in wood can happen due to several reasons, including the drying effects, and accumulation of the stresses on the location of joints. Due to orthotropy of this material, different damage parameters should be considered for wood to cover failure of this material both under tension as well as under compression. The purpose of this thesis is to enhance failure modes for damage initiation. Different criteria need to be taken into consideration, implemented as user-defined material models in the computational software Abaqus to be investigated on specific benchmark problems.



The following points should be satisfied during the thesis:

- Literature review on different failure criteria for damage initiation in the composite materials and wood
- Implementation and further developement of user-defined material models (UMATs) in Abaqus
- Investigation of UMATs on benchmark problems
- Damage propagation

Language: English or German

Master thesis available from January 2022

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