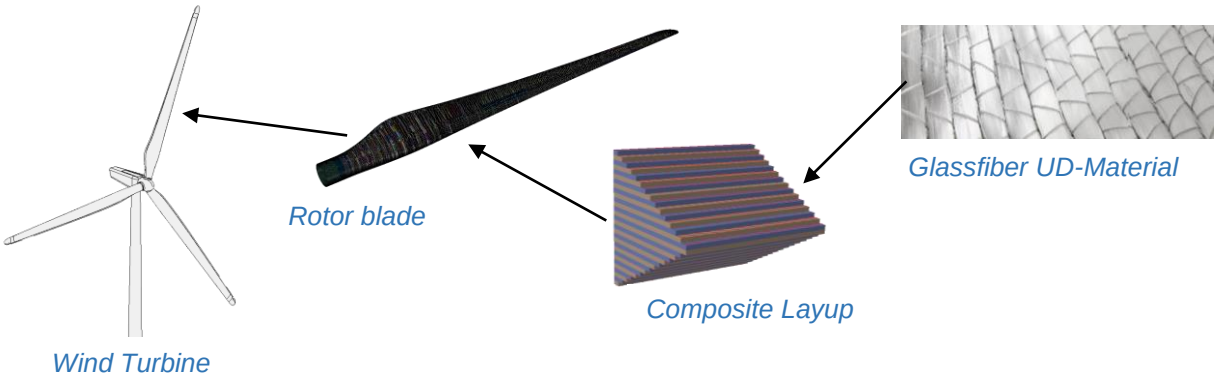
Leibniz Universität Hannover

ISD INSTITUT FÜR STATIK UND DYNAMIK

Bachelor-, Studien-, Seminar- oder Masterarbeit

Material homogenization with consideration of delamination

For fast computation of large structures it is necessary to reduce the complexity. This can be done in different ways: Model complexity through fewer components or reduction of the relevant components, reduction of the elements used or simplification of the material set, reduction of the unidirectional individual layers present in the element through homogenization; to name just a few.



In the future, however, delamination will also be taken into account when homogenizing the individual layers in the laminate.
The current state of the art is to map the delamination via cohesive elements or cohesive surfaces. However, these are very complex to calculate. For this reason, the uniaxial material behavior is to be considered here, taking delamination into account in the homogenization step. The characteristic load displacement curves resulting from the homogenization thus take into account the behavior and should thus serve as the basis for the fast nonlinear calculation at the structural level.

Tasks/Work program:
Literature review.
Programming with python/matlab
Discussion of results.
Written elaboration and Presentation.

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