

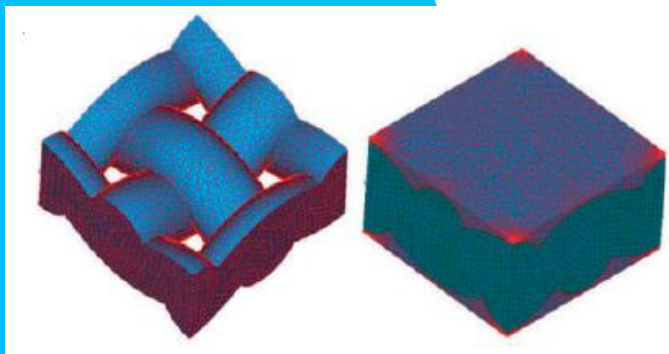
Finite element based design of facade panels made of natural fibre composites

As part of the IntCDC cluster of excellence, fibre composites are currently being developed at the Department of Biobase Materials and Material Cycles in Architecture (BioMat) located at Institute of Building Structures and Structural design (ITKE). One of the focus is their application as a material of sustainable facade panels. In cooperation with the Institute of Structural Design (KE), where methods for the FE-based design of load-bearing structures are currently being developed as part of IntCDC, a model for the numerical calculation of the load-bearing behaviour of facade elements made of natural fibre composites is to be developed as part of this master's thesis.

Based on a literature research and small scale experimental tests, a finite element model that can map the material-specific properties of the composite should be developed, verified and validated.

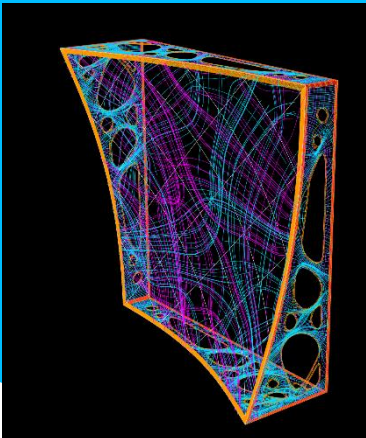
Subsequently, supported by true-to-scale experiments, the model should be scaled up to model entire facade elements aiming for the determination of the load bearing capacity and the optimization of these panels. Within the modelling of the facade elements the influence of the scatter of material and geometrical properties should be taken into account.

Master Thesis



Xiong et al.,2018 | Modelling of fibres

finite element modelling



BioMat | Uni Stuttgart

