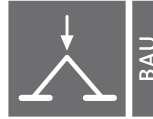


Supervisor und contact:

Michael Loibl, M.Sc.
Institute for Engineering Mechanics and Structural Analysis
michael.loibl@unibw.de, 089/6004-3487



Universität der Bundeswehr München

Institut für
Mechanik und Statik

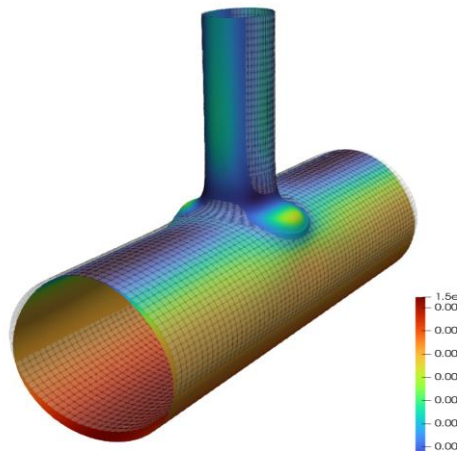
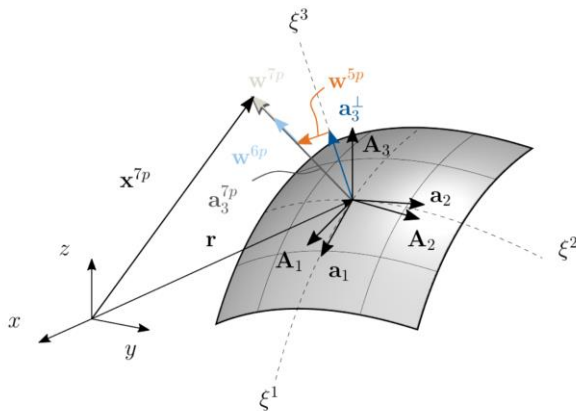
Master/Project thesis

This work can also be carried out as a **student job (Hiwi)**.

Coupling of isogeometric Reissner-Mindlin shell elements

Shell models in the Finite Element Method (FEM) usually consist of several different surfaces. These are meshed separately and must then be coupled at their connection lines. There are different approaches to model these couplings.

At our institute, we are working on a hierarchical Reissner-Mindlin shell formulation in which three displacement variables and two shear deformations are discretised. The shell formulation is based on the Isogeometric Analysis (IGA), which is a special form of FEM in which spline functions are used as basis functions. The penalty method is a flexible approach to shell coupling that can be applied to different coupling angles and meshes.



However, a correct and practicable coupling of the shear deformations and the associated rotations is still an open research question. Within the scope of this work, different approaches will therefore be implemented and tested.

Tasks:

- Review of the Reissner-Mindlin shell formulation, IGA and penalty method
- Review of existing coupling formulations
- Extension of the Matlab FE research code with additional coupling formulations
- Validation and comparison of results