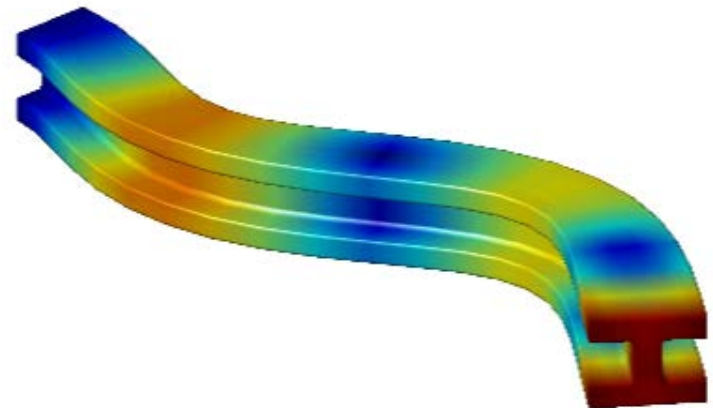


Extension of the FCMLab Toolbox for geometrical and material nonlinear analysis

Project Characteristics

Mechanics: ★★★★★
Mathematics: ★★★★★
Programming: ★★★★★

- The Finite Cell Method is a powerful embedded domain method based on high order finite elements.
- The FCM Toolbox is an object-oriented FCM-Matlabcode programmed by students.
- Nonlinear analysis allows more realistic description of different phenomena.
- Your Task:
 - Implementation of nonlinear kinematics and a nonlinear solver
 - Implementation of simple nonlinear material models
 - Hyperelastic materials
 - Simple plasticity model
- Programming language: Matlab



Extension of the FCMLab Toolbox for geometrical and material nonlinear analysis

Project Characteristics

Mechanics: ★★★★★☆
Mathematics: ★★★★★☆
Programming: ★★★★★☆

- What will you learn:
 - Better understanding the finite element method
 - Nonlinear continuum mechanics
 - Basics of material modelling
 - Object oriented programming in Matlab
 - Software development in a team

Parts to be extended

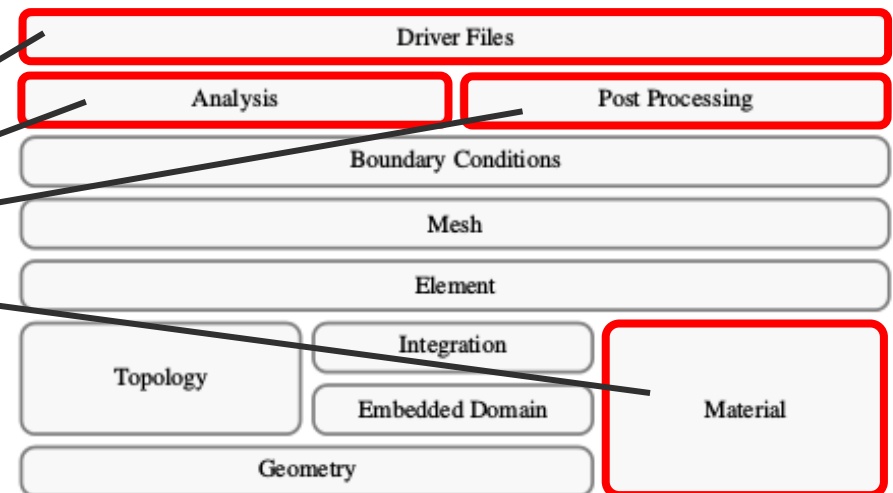


Figure 7: Layered decomposition of FCMLab