



Master-Thesis

Finite-Element Method, Biomechanics

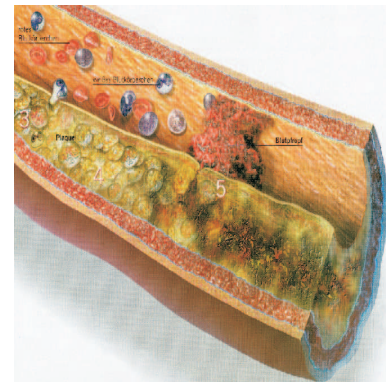
Parallel Computer Simulation of Arterial Walls

Goal:

Finite element simulations of pressure-deformed arteries using the FEAP/FETI environment for large scale computing.

Project Description:

In medical attendance different methods are used to smooth atherosclerosis by overstressing the arterial walls and evoking irreversible effects. Numerical studies, e.g. finite element simulations, are useful applications to estimate the results of this treatment. The combination of the finite element program FEAP and the parallel solution strategy FETI enables the simulation of large scale problems, which occurred from the 3D-discretization of human arteries.



Procedure:

- literature research,
- familiarization of herself/himself with FEAP and FETI,
- accomplishment of simulations and interpretation of the results,
- scientific documentation in LaTeX.

Prerequisites:

- tensor calculus, continuum mechanics and finite element method,
- Fortran77, C and LaTeX.

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Status: to be assigned

