Chair for Computation in Engineering
Deparment of Civil, Geo and Environmental Engineering
Technical University of Munich

Space-Time Finite Element Method

Project Characteristics

Modeling:	★★☆☆☆
Mathematics:	★★★★☆
Programming:	★★★★☆
Science:	★★★★☆

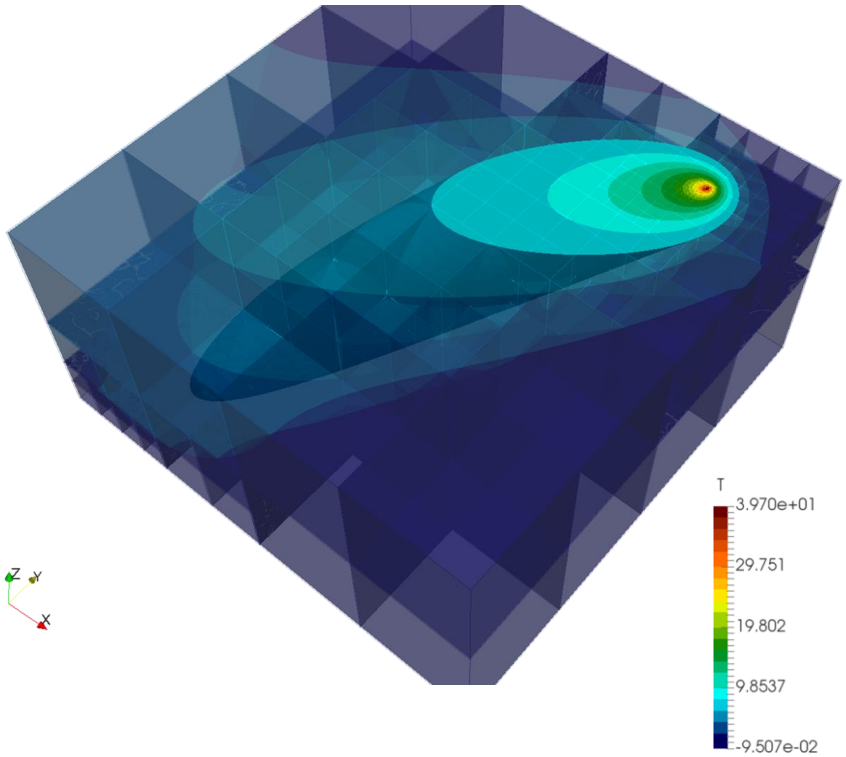
Setting:

Space-Time FEM is an alternative approach for solving time-dependent problems.

- High-order convergence in time
- Evolving domains
- Large systems, large “time slabs” → HPC
- Non-uniform discretizations: local refinement in space-time/subcycling

Your Tasks:

- Literature review / understanding the theory
- Formulating the discrete problem and implementing a transient 1D problem (so 2D: (x,t))
- Extension to higher dimensions
- Investigating stability for large “time slabs”
- Comparison to the traditional approach with finite difference schemes.



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