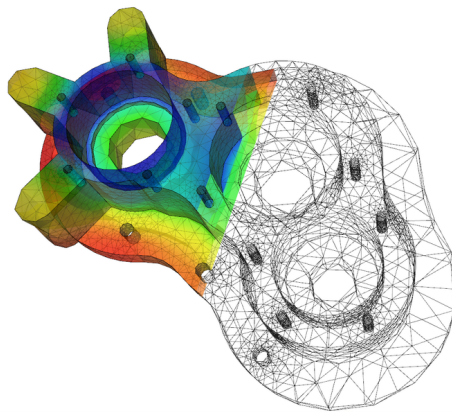


Master Thesis

Project Chrono

“Project Chrono” is an open source multi-physics simulation engine. Among many other features it contains a module for solving nonlinear finite element problems as well as contact problems. The aim of this thesis is to explore the capabilities of Project Chrono and compare its features with the state of the art. Therefore, scientific literature needs to be studied and tests need to be run with Project Chrono. Depending on the student’s interest, Project Chrono can also be compared to commercial software codes (e.g. ANSYS or LS-DYNA) or an interface can be implemented to include it in the institute’s finite element code.



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The specific tasks are

- Review of publications related to Project Chrono’s finite element module
- Investigation of the abilities of Project Chrono with focus on finite element simulations and contact mechanics by running benchmarks with Project Chrono
- Optional: Compare results with commercial software codes regarding accuracy and efficiency
- Optional: Implement an interface to include Project Chrono in the institute’s finite element code NumPro
- Interpretation, evaluation and documentation of results

Recommended fields of interest

Finite element simulation, contact mechanics

Literature

[1] Project Chrono: <http://projectchrono.org/>