

BERNOULLIS TAFELRUNDE

GRADUATE STUDENT SEMINAR

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Grosser Hörsaal, Mathematisches Institut

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A very informal introduction to finite elements

ABSTRACT

In this talk I will give an informal introduction to finite elements. Meaning that I will explain what people from numerical analysis mean when they say, that they are using for example "quadratic finite elements". We will not spend a lot of time discussing the technical details from function analysis behind the method, but rather give an idea of how the method is applied explicitly to a partial differential equation and how we end up with a linear system to solve. I will complete the talk by showing an example from my master's thesis, where I used linear and quadratic finite elements with mass lumping to numerically solve the damped wave equation. If there is time left I will also shortly mention how this method can be taken further (to the so called boundary element method) and how I use a specialized version of this method in my dissertation.