

## Nonstandard finite elements for wave problems

Ilaria Perugia

*University of Vienna*

`ilaria.perugia@univie.ac.at`

Finite elements are a powerful, flexible, and robust class of methods for the numerical approximation of solutions to partial differential equations. In their standard version, they are based on piecewise polynomial functions on a partition of the domain of interest. Continuity requirements are possibly dictated by the regularity of the exact solutions. By breaking these constraints, new methods that are specifically tailored to the problem at hand have been developed in order to better reproduce physical properties of the exact solutions, to enhance stability, and to improve accuracy vs. computational cost. Nonstandard finite element approximations of wave propagation problems based on the space-time paradigm will be the focus of this talk.