

Einladung zur öffentlichen Defensio von Herrn

**Paul Stocker**

Thema der Dissertation:

**Space-time finite element methods**

Abstract: Space-time finite element methods approximate solutions of time dependent partial differential equations (PDEs) with a discrete set of functions that live on a mesh of space and time. They allow for space-time adaptive meshing and are naturally high-order methods. However, compared to time-stepping methods, they are inherently expensive due to time being treated as an additional dimension of the mesh and of the approximation spaces. In the literature space-time methods for linear hyperbolic and parabolic problems are well studied. However, much less work has been devoted to nonlinear equations. We explore ways to improve the efficiency of space-time finite element methods for the wave equation using Trefftz methods combined with tent-pitching. Then, we introduce a novel space-time method for a class of nonlinear parabolic PDEs known as cross-diffusion systems.

**Prüfungssenat:**

Univ.-Prof. Dr. Andreas Cap (Vorsitz)  
( Universität Wien)

Univ.-Prof. Ilaria Perugia, PhD  
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Prof. Dr. Helene Barucq  
(Pau University)

Prof. Dr. Lehel Banjai  
(Heriot Watt University)

Time: Jul 1, 2021 11:00 AM Vienna

Join Zoom Meeting

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