

Kolloquium Angewandte Mathematik
Prof. Thomas Apel (BauV1)
Prof. Matthias Gerdts (LRT1)
Prof. Joachim Gwinner (LRT1)
Prof. Markus Klein (LRT1)

Vortragsankündigung

Am **Mittwoch, dem 25.02.2015**, hält um **17:00 Uhr**

Herr **Dr. Ioannis Touloupoulos**
(RICAM Linz)

einen Gastvortrag über das Thema

Applications of Discontinuous Galerkin Finite Element-Isogeometric Analysis Methods

Der Vortrag findet im **Raum 1116** in **Gebäude 150** statt.

Vortragzusammenfassung

In this talk, we will present discontinuous Galerkin finite element (dG FE) and Isogeometric Analysis (dG IgA) methods for solving problems of various fields, e.t.c aeroacoustics, conservation laws, compressible/incompressible flows, linear/nonlinear diffusion problems. We will focus mainly on linear/nonlinear diffusion problems.

We will start by explaining the basic ingredients which are associated with the construction of the dG FE schemes (e.g. broken spaces, numerical fluxes, inverse inequalities). Then we will see applications of dG FE methods for simulating realistic flow problems. Several topics related to flow problems, like slope limiters, artificial BCs, nonlinear solvers, will be briefly mentioned. We will close this part by showing error estimates for simplified linear/nonlinear model problems.

In the last part, we will introduce the IgA concept and we will present an analysis for a dG IgA method applied on model elliptic problems with low regularity solutions. The low regularity comes from the appearance of rough diffusion coefficients of the problem or from the appearance of non-smooth boundary parts of the computational domain. For the later case, we will show a construction of graded dG IgA meshes near the non-smooth boundary points in order to recover the optimal convergence rate of the method as in the case of having smooth solutions.

Alle Interessierten sind dazu herzlich eingeladen.