



Seminar Announcement

Speaker: Murat Uzunca
Atılım University, Ankara

On The Adaptive Solutions of Non-Linear Reactive Flows Using
Discontinuous Galerkin Space Discretization

Abstract

Many engineering problems such as chemical reaction processes, heat conduction, nuclear reactors, population dynamics, porous medium in geosciences etc. are governed by coupled convection-diffusion partial differential equations (PDEs) with non-linear source or sink terms. It is a significant challenge to solve such PDEs numerically when they are convection/reaction dominated, and the standard Galerkin finite element methods (FEMs) are known to produce spurious oscillations, especially in the presence of sharp fronts in the solution, on boundary or interior layers. In this work, we solve such equations adaptively based on residual-based a posteriori error estimation using discontinuous Galerkin FEMs in space, in an accurate and efficient way. Theoretical a posteriori error bounds are also provided.

DATE: May 20, 2015

TIME: 15:40

PLACE: FEF 404 (Seminar Room)

All interested people are cordially invited.
After the seminar, some cookies and soft drinks will be served.