



Talk announcement

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hp-finite element approximation of boundary layers

The accurate and efficient resolution of boundary layers is a challenging subject. The numerical solution of convection-diffusion problems with a dominant role of convection plays important role in many scientific and engineering applications, such as viscous flow, fluid-structure interaction, transport models, and others.

These problems typically exhibit steep gradients, e.g., in the vicinity of solid walls, which are called boundary layers. At the same time, a sufficiently accurate approximation of boundary layers is essential in order to obtain physically admissible solution.

Usually, piecewise-linear finite element methods combined with appropriate stabilization techniques are used. In this talk we investigate the potential of the hp-FEM to facilitate the numerical treatment of this class of problems.