



Events

[Current Events](#)[Lectures ▾](#)[Events Archive ▾](#)

Computational Mathematics Seminar Series

Error Analysis of C0 Interior Penalty Methods for An Elliptic State-Constrained Optimal Control Problem**Yi Zhang, Notre Dame**Digital Media Center 1034
November 29, 2016 - 03:30 pm**Abstract:**

We study C0 interior penalty methods for an elliptic optimal control problem with pointwise state constraints on two and three dimensional convex polyhedral domains. The approximation of the optimal state is solved by a fourth order variational inequality and the approximation of the optimal control is computed by a post-processing procedure. To circumvent the difficulty caused by the low regularity of the optimal solutions, we carried out an a priori error analysis based on the complementarity form of the variational inequality. Furthermore, we develop an a posteriori analysis using a residual based error estimator. Numerical experiments are provided to gauge the performance of the proposed methods. This is joint work with Susanne Brenner and Li-yeng Sung.

Speaker's Bio:

Yi Zhang received his Ph.D. in Mathematics in 2013 from Louisiana State University. He is currently a postdoc at the Department of Applied and Computational Mathematics and Statistics (ACMS), the University of Notre Dame. His research interests include discontinuous Galerkin finite element methods for variational inequalities and optimal control problems, an a posteriori error estimate and adaptivity, numerical solutions of stochastic PDEs, and numerical optimization.

This lecture has a reception @ 03:00 pm