Department of Mathematical Sciences

Spring 2016

Colloquium Series

Friday, April 29, 2016 at 3pm in Bell Hall 143

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Finite Element Methods for Elliptic Distributed Optimal Control Problems with Pointwise Control and State Constraints

In this talk, we study conforming and nonconforming finite element methods for an elliptic distributed optimal control problem with pointwise state and control constraints. The state- control minimization problem is solved for the state variable by reducing it into a fourth order variational inequality and convergence of the state error is established in the H_2-like energy norm. The key ingredients are constraint preserving properties of the interpolation operator and the enriching map. We also discuss post-processing methods to obtain the approximation of the control from the discrete state. Finally, we present numerical results to illustrate theoretical findings.

For further information, please contact Drs. Emil Schwab or Xiaogang Su, eschwab@utep.edu or xsu@utep.edu