Susanne C. Brenner, Li-yeng Sung and Yi Zhang* (yzhan112@utk.edu). $C^0$ Interior Penalty Methods for an Elliptic Distributed Optimal Control Problem.

We consider an elliptic optimal control problem with pointwise state constraints on convex polygonal domains and solve it as a fourth order variational inequality for the state by $C^0$ interior penalty methods. The approximation of the optimal control is obtained by a post-processing procedure. We will present error estimates and numerical results both on uniform and adaptive meshes. (Received September 22, 2014)