A FE based Multigrid scheme for elliptic Nash-equilibrium optimal control problems

MOHAMMAD TANVIR RAHMAN

Chair IX Scientific Computing, Department of Mathematics,
University of Würzburg,
Emil-Fischer-Straße 30,
97074 Würzburg, Germany
tanvir.rahman@mathematik.uni-wuerzburg.de
joint work with ALFIO BORZI

A finite-element based multigrid scheme for elliptic Nash-equilibrium multiobjective optimal control problems with control constraints will be presented. The multigrid computational framework implements a nonlinear multigrid strategy and collective smoothing for solving the multiobjective optimality system discretized with finite elements. Error estimates for the optimal solution and two-grid local Fourier analysis of the multigrid scheme are also discussed. Results of numerical experiments are presented to demonstrate the effectiveness of the proposed framework.