Multigrid methods for boundary control problems

Dirk Abbeloos

Department of Computer Science,
University of Leuven,
Celestijnenlaan 200A,
3001 Heverlee, Belgium
dirk.abbeloos@cs.kuleuven.be
joint work with Stefan Vandewalle

In this talk we give an overview of multigrid methods designed for parabolic boundary control problems, i.e. a class of optimization problems where right-hand sides of the boundary conditions needs to be found in order to minimize an objective. We present multigrid components, e.g smoother and coarse grid operator, designed for Dirichlet and Robin type of boundary control problems. Numerical results are presented and illustrated through a half-space analysis, which is a mode analysis based on a half-space domain where the effect of only one boundary condition at a time can be included.