

## Large Adaptive Wavelet Methods for PDE-Constrained Control Problems

Angela Kunoth

The numerical solution of PDE-constrained control problems requires to repeatedly solve a system of PDEs for the involved variables (state, costate and control). Considering specifically constraints in form of a linear elliptic PDE, we aim at deriving most efficient numerical solution schemes. These schemes will be based on wavelet representations which allow us to prove convergence of an adaptive scheme as well as to provide optimal complexity estimates. Moreover, I will address preconditioning issues and the selection of appropriate norms in the control functional, and present corresponding numerical results.