## Minisymposium 2 - Numerics for PDE-Constrained Control Problems

### Wavelet Methods for PDE Constrained Elliptic Control Problems with Dirichlet Boundary Control

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We consider wavelet methods applied to control problems constrained by a linear elliptic PDE with Dirichlet boundary control. In order to handle the latter in a convenient way, we employ a saddle point formulation for the PDE constraints. Then the necessary conditions for optimization lead to a coupled system of saddle point problems. We investigate fast iterative solution methods for this system with optimal preconditioners based on the Fast Wavelet Transform for problems on up to three-dimensional spatial domains. In particular, the choice of different modelling parameters in the cost functional and their effect on the numerical simulation and solution will be discussed.