

Sparse discretization of sparse control problems

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We consider optimal control problems that inherit a sparsity structure, especially we look at problems governed by measure controls. Our goal is to achieve maximal sparsity on the discrete level. We use variational discretization of the control problems utilizing a Petrov-Galerkin approximation of the state which induces controls that are composed of Dirac measures. In the parabolic case this allows us to achieve sparsity on the discrete level in space and time. Numerical experiments show the differences of this approach to a full discretization approach.