

Im Oberseminar
Numerical Optimization
wird am
Dienstag, dem 11. Dezember 2018
folgender Vortrag gehalten:

**A Lagrange Multiplier Method For Semilinear Elliptic State Constrained
Optimal Control Problems**

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Abstract:

In this talk, the solution of an optimal control problem subject to a semilinear elliptic state equation and pointwise control and state constraints will be studied. Pointwise state constraints play an important role in many real world applications of PDE optimization. However, optimal control problems with pointwise state constraints suffer from low regularity of the respective Lagrange multipliers. Indeed, the multiplier associated to the state constraint is a Borel measure.

In order to overcome this problem we apply an augmented Lagrange method. Establishing a special update rule that performs the classical augmented Lagrange update only, if a sufficient decrease of the maximal constraint violation and the violation of the complementarity condition is achieved, allows us to guarantee the L^1 -boundedness of generated multiplier approximations. We prove strong convergence of subsequences of the primal variables to a local solution of the original problem as well as weak convergence of the adjoint states and weak convergence of the multipliers associated to the state constraint. Moreover, we show existence of stationary points in arbitrary small neighborhoods of local solutions of the original problem. To illustrate our theoretical findings, we present various numerical results.

Zeit: 10:15 Uhr
Raum: D 404

Interessenten sind herzlich willkommen!
gez. Prof. Stefan Volkwein