



Institut für  
Angewandte Mathematik



Leibniz  
Universität  
Hannover

Institut für Angewandte Mathematik  
21.09.2016

## Vortragsankündigung

**Dr. Christian Kirches  
(Universität Heidelberg)**

### **Mixed-Integer Optimal Control – Approximation Properties and Fast Numerical Methods**

We are interested in the fast solution of nonlinear ODE/DAE-constrained mixed-integer optimal control problems. Such problems frequently arise in industrial process control, and typically show significant potential for optimization. The hybrid and nonlinear nature of these problems however is challenging to deal with. We present a theoretical framework based on a direct and simultaneous method for optimal control and on a partial outer convexification reformulation of the problem that results in a complementarity programming problem formulation. We show that this framework enjoys an approximation property in function spaces that results in feasibility and optimality certificates. Our framework also allows for efficient computation of solutions with known approximation quality after discretization in time.

**Mittwoch, 28. September 2016, 10:00 Uhr, Raum c311  
Hauptgebäude der Universität**