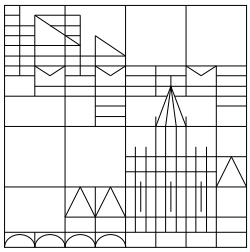
Universität Konstanz · Fach 203 · 78457 Konstanz



Universität Konstanz

Fachbereich Mathematik und Statistik

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Datum: 27. Juni 2013

Einladung

Im Rahmen des Schwerpunktskolloquiums „Analysis und Numerik“ hält

Herr Professor Dr. Stefan Ulbrich (TU Darmstadt)

am **Donnerstag , dem 4. Juli 2013**, einen Vortrag zum Thema:

Multilevel methods for PDE-constrained optimization based on adaptive discretizations and reduced order models

Der Vortrag findet um **17.00 Uhr** in Raum **F 426** statt.

Es wird Gelegenheit gegeben, sich vorher (ab 16.30 Uhr)
im Common Center F 441 bei Tee und Kaffee zu treffen.

Alle Interessenten sind herzlich eingeladen.

Andrea Barjasic
Beauftragte für das Kolloquium

Abstract:

We consider optimization problems governed by partial differential equations. In recent years there has been a significant effort to develop multilevel optimization methods that combine adaptive discretization techniques, reduced order models and a posteriori error estimation in an efficient way. These methods offer the potential to carry out most optimization iterations on comparably cheap discretizations and to solve the optimization problem at computational costs of only a few PDE-simulations. In this talk we discuss recent developments for multilevel optimization methods. In particular, we consider a multilevel optimization approachthat generates a hierarchy of adaptive discretizations during the optimization iteration using adaptive finite-element approximations and reduced order models such as POD. The adaptive refinement strategy is based on a posteriori error estimators for the PDE-constraint, the adjoint equation and the criticality measure. The resulting optimization method allows to use existing adaptive PDE-solvers and error estimators in a modular way. We demonstrate the efficiency of the approach by numerical examples.

(Volkwein)