KARL-FRANZENS-UNIVERSITÄT GRAZ
UNIVERSITY OF GRAZ
Institute of Mathematics and Scientific Computing

INVITATION

to the talk of

Kevin Sturm

(RICAM Linz)

Title: Minimax differentiability and PDE constrained shape optimization

Time: Friday, 03rd of February, 2017, 10:00

Place: SR 11.32, Heinrichstraße 36, 3rd Floor, 8010 Graz

Institute of Mathematics and Scientific Computing

Abstract:

In this talk I will discuss several recent developments in PDE constrained shape optimization and the differentiability of minimax functions.
In the first part of the talk, a recent result concerning the sensitivity of the minimax of a Lagrangian with respect to a parameter will be presented. A standard approach to the minimization of a state constrained objective functions in Control/Shape Optimization problems is to consider the minimax of the associated Lagrangian. By using the new notion of averaged adjoint, the minimax problem need not be related to a saddle point: non-convex objective functions and non-linear state equations can be directly considered.
In the second part of the talk, I will give a brief introduction to shape optimization. Furthermore, I will discuss the structure of shape derivatives in the smooth situation, i.e., the constraint and the cost function are smooth. This has direct implications for the numerical implementation depending on which method is used to discretise the PDE.

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