Computational Mathematics Seminar Series

PDE constrained optimization with pointwise constraints on the derivative of the state

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Professor

Digital Media Center 1034
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Abstract:
In many processes modeled by partial differential equations (PDE) the, pointwise, size of the gradient is a key quantity. Prominent examples for this are damage or plasticity models. In the optimization of such processes pointwise constraints on the gradient are natural. The numerical analysis of these problems is complicated by the fact, that the natural topology coming from the PDE is too weak for handling the bounds on the gradient.

Within this talk, we will discuss existence of solutions to such problems as well as their approximability by finite elements with particular emphasis on non-smooth domains.

Speaker's Bio:

Winnifried Wollner is a professor of mathematics at Technische Universität Darmstadt in Germany. Wollner received his PhD from the University of Heidelberg in Germany in 2010, under the supervision of
Prof. Dr. R. Rannacher. His research interests include optimization with partial differential equations and their numerical approximation by finite elements.

This lecture has refreshments @ 03:00 pm

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