



## Oberseminar of Numerical Optimization

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We kindly invite you to the following talk

**Dr. Caroline Geiersbach**

(WIAS Berlin)

*Optimality Conditions and Regularization for Stochastic Optimization  
with Almost Sure State Constraints*

**Tuesday, 29 June 2021**

Begin: **4:00 p.m.**

Room: **Zoom-Link:** <https://zoom.us/j/99085685058?pwd=bEZrV0FoaDdFVHdCOFRZOUNBeHVzQT09>

Interested visitors are warmly welcomed!

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**Abstract:**

In this talk, we present necessary and sufficient optimality conditions for convex stochastic optimization problems subject to almost sure equality and conical constraints. We refine classical results by Rockafellar and Wets from two-stage stochastic optimization to include states belonging to the Bochner space of essentially bounded random variables with images in a reflexive and separable Banach space. Under certain conditions, the optimality conditions given are necessary and sufficient. Lagrange multipliers exhibit different regularity depending on whether or not the assumption of relatively complete recourse is satisfied. We propose a Moreau-Yosida regularization for such problems and show consistency of the optimality conditions for the regularization problem as the regularization parameter is taken to infinity. Applications and algorithmic approaches are discussed.

Joint work with Michael Hintermüller and Winnifried Wollner