



# Einladung zum Oberseminar Wissenschaftliches Rechnen

Julius-Maximilians-Universität Würzburg  
Lehrstuhl für Wissenschaftliches Rechnen IX

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## **Model risk and robustness of quadratic hedging strategies**

In incomplete markets, there is no self-financing hedging strategy which allows to attain the contingent claim at maturity. In other words, one cannot eliminate the risk completely. However it is possible to find 'partial' hedging strategies which minimize some risk. One way to determine these 'partial' hedging strategies is to introduce a subjective criterion according to which strategies are optimized. We consider two types of quadratic hedging strategies. In the first approach, called mean-variance hedging (MVH), the strategy is self-financing and one minimizes the quadratic hedging error at maturity in mean square sense. The second approach is called local risk-minimization (LRM). These strategies replicate the option's payoff, but they are not self-financing and the risk is minimized in a 'local' sense. We study the relation of such strategies with the theory of backward stochastic differential equations and we apply this to the approximation and simulation of MVH and LRM strategies.

This talk is based on the following references:

Asma Khedher and Michèle Vanmaele: Discretisation of FBSDEs driven by càdlàg martingales, *Journal of Mathematical Analysis and Applications* 435, 2016, 508-531.

Giulia Di Nunno, Asma Khedher and Michèle Vanmaele: Robustness of Quadratic Hedging Strategies in Finance via Backward Stochastic Differential Equations with Jumps, *Applied Mathematics & Optimization* 72, 2015, 353-389.

Xianming Sun, Thorsten Schulz, Asma Khedher and Michèle Vanmaele: Model risk and discretisation of locally risk-minimising strategies, submitted and under review

Ort: Raum 30.02.003 (2. Stock) (Mathegeb. 30 West)    Zeit: Mittwoch, 23.03.2016, 11.00 Uhr

Zu diesem Vortrag laden wir Sie herzlich ein.

*gez. Prof. Dr. Alfio Borzi*  
*gez. Prof. Dr. Roland Griesmaier*