



## Einladung zum Oberseminar Stochastik

Im Seminarraum 1 und online über [Zoom](#) spricht

am Donnerstag, 16.12.2021 um 18:00 Uhr

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zum Thema

### **Three Examples of Stochastic Optimisation in a Diffusion Model: Minimal Time in Critical Drawdown**

Abstract

The drawdown of a stochastic process is the absolute distance to its running maximum and can be interpreted as a path-dependent measure of risk. In this talk, we consider three stochastic control problems inspired by the real-world question of how to invest and reinsure in an ‘optimal’ way. These problems are based on the minimisation of the ‘expected time in (critical) drawdown’ of diffusion models under dynamic controls, i.e. the time during which the drawdown process exceeds a predefined, ‘critical’ threshold  $d > 0$ . By exploiting connections to Laplace transforms of passage times, Hamilton–Jacobi–Bellman equations and reflected stochastic differential equations, we find value functions and optimal strategies for the cases of control by investments, control by reinsurance and an extension thereof.

Alle Interessenten sind herzlich eingeladen.

Die Dozenten der Stochastik