

Einladung

In der Reihe „Chemnitzer Mathematisches Colloquium“ der Fakultät für Mathematik der TU Chemnitz spricht

Herr Prof. Dr. Milos Kopa (Karls-Universität Prag)

über das Thema

Robustness of stochastic programs with endogenous randomness via contamination.

Der Vortrag findet am

Donnerstag, dem 1. Juni 2023, um 16:00 Uhr, im Raum 2/B202

statt. Ich möchte Sie hiermit recht herzlich zu dieser Veranstaltung einladen. Das Kolloquium wird von Herrn Prof. Dr. Alois Pichler geleitet.

Abstract:

Investigating stability of stochastic programs with respect to changes in the underlying probability distributions represents an important step before deploying any model to production. Often, the uncertainty in stochastic programs is not perfectly known, thus it is approximated. The stochastic distribution's misspecification and approximation errors can affect model solution, consequently leading to suboptimal decisions. It is of utmost importance to be aware of such errors and to have an estimate of their influence on the model solution. One approach, which estimates the possible impact of such errors, is the contamination technique. The methodology studies the effect of perturbation in the probability distribution by some contaminating distribution on the optimal value of stochastic programs. Lower and upper bounds, for the optimal values of perturbed stochastic programs, have been developed for numerous types of stochastic programs with exogenous randomness. In this paper, we first extend the current results by developing a tighter lower bound applicable to wider range of problems. Thereafter, we define contamination for decision-dependent randomness stochastic programs and prove various lower and upper bounds. We split the various cases into two separate sub-classes based on whether the feasibility set is fixed or decision-dependent and discuss several tractable formulations. Finally, we illustrate the contamination results on a real example of a stochastic program with endogenous randomness from a financial industry.

Prof. Dr. Daniel Potts
Dekan

