Minisymposium 20 - Nonlinear and Stochastic Optimization

Multistage stochastic programs: Stability and scenario trees

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Multistage stochastic programs are regarded as optimization problems in spaces of integrable functions. The stability of such optimization problems with respect to perturbations of the stochastic input process is adressed. We review some recent stability results and discuss their use for designing scenario tree approximations of the stochastic input process. We present a general algorithmic framework for the generation of such tree approximations and report on its implementation. Numerical experience is provided for scenario tree approximations of multivariate processes in electricity portfolio management.