

# Analysis and Data Science Seminar

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## UNCERTAINTY IN UNCERTAINTY AND ROCKAFELLIAN RELAXATION

Tuesday, March 10, 2026  
3:00 P.M. in Massry B012

**ABSTRACT.** A critical aspect of PDE constrained optimization is to account for uncertainty in the underlying physical models, for example in model coefficients, boundary conditions, and initial data. Uncertainty in physical systems is modeled with random variables, however, in practice there may be some nontrivial ambiguity in the underlying probability distribution from which they are sampled. As stochastic optimal control problems are known to be ill-conditioned to perturbations in the sampling distribution, we describe an analytic framework that is better conditioned to such “meta-uncertainties” and conclude with numerical examples.