ID de Contribution: **221** Type: **Invited talk**

Consistency of sample-based solutions for stochastic optimization problems with conical constraints

lundi 28 juillet 2025 15:00 (30 minutes)

This talk is concerned with a class of risk-neutral stochastic optimization problems defined on a Banach space with almost sure conic-type constraints. This kind of problem appears in the context of optimal control with random differential equation constraints where the state of the system is further constrained almost surely. For this class of problems, we investigate the consistency of optimal values and solutions corresponding to sample average approximation (SAA) as the sample size is taken to infinity. Consistency is also shown in the case where a Moreau-Yosida-type regularization of the constraint is used. The existence of Lagrange multipliers can be guaranteed under Robinson's constraint qualification with an appropriate choice of function space for the constraint. Our assumptions allow us to also show consistency of SAA Karush-Kuhn-Tucker conditions. This work provides theoretical justification for the numerical computation of solutions frequently used in the literature and in experimentation.

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