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Stevens Society of Mathematicians  
Charles V. Schaefer Jr. School of Engineering & Sciences

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*Stochastic programs with risk objectives: Robustness and stress testing*

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2:00 pm

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*Abstract:*

In applications of stochastic programming, optimization of the expected outcome need not be an acceptable goal. This has been the reason for recent proposals aiming at construction and optimization of more complicated nonlinear risk objectives. We will survey various approaches to the risk quantification and optimization in the framework of static and two-stage stochastic programs and comment on their properties. We shall focus then on exploitation of the contamination technique to stress testing or robustness analysis of stochastic programs with polyhedral risk objectives with respect to the underlying probability distribution. The ideas will be illuminated by numerical results for Conditional Value at Risk optimization and for a bond portfolio management problem.

Jitka Dupačová received her PhD. degree in 1967 and the Doctor of Sciences degree in 1985 from the Faculty of Mathematics and Physics at Charles University in Prague. She is a scholar of the International Institute for Applied Systems Analysis, Laxenburg, Austria (1985-1986) and a member of the Mathematical Programming Society, the WG 7.7 of IFIP, EURO WG on Financial Modeling, and the Czech Econometric Society. She is known for her results in stochastic programming and related areas of statistics and optimization, which is also the subject of her books and more than 150 published scientific papers. Jitka Dupačová is active in stochastic modeling and analysis in economics, finance and other areas, and she supervised many projects of EC, gave courses on stochastic programming, financial management and optimization in statistics at various Universities around the world and prepared special courses and lectures for Czech banks and for the Central Bank of Malta. In acknowledgement of her founding contributions to the development of stochastic programming she was awarded a memorial plaque during the X. Symposium on Stochastic Programming (2004).

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Refreshments will be provided.

For more information contact Darinka Dentcheva or call 201-216-5449.