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## Solving discrete models in robust portfolio optimization

Daniel Bienstock  
*Department of IEOR*  
*Columbia University*  
*500 W. 120th St.*  
*New York, NY 10027*  
*USA*  
dano@columbia.edu

### **Abstract**

A common ingredient in robust optimization models is convexity—the explicit reason for using convexity is that it leads to ‘tractable’ models, that is to say, polynomially solvable. Yet, in practice, uncertainty or ‘risk’ frequently arises in the form of exceptional events, which, if modeled accurately, lead to sharp non-convexities.

In this talk we present continuing work that considers several general, non-convex robust optimization models arising in portfolio optimization. Solving these models involves solving mixed-integer programs; however, we show that using the right techniques (primarily appropriate versions of Benders’ decomposition) real-life, large-scale instances of these models can be solved quite efficiently.