

# Bilevel linear and linear mixed integer programming: applications, complexity and algorithm

Oleg Prokopyev

*University of Pittsburg, USA*

## **Abstract**

Bilevel linear and linear mixed integer programming: applications, complexity and algorithm. abstract: In contrast to standard single-level optimization, bilevel optimization models hierarchical decision-making processes with two or more decision-makers. The upper-level decision-maker (referred to as the leader) acts first. Then the lower-level decision-maker (the follower) solves his/her own (lower-level) optimization problem, the parameters of which depend on the leaders decisions. The leaders (upper-level) objective is a function of both the leaders and followers decision variables. Thus, the leader should decide by considering the followers response (i.e., optimal solutions to the followers optimization problem) referred to as the lower-level reaction set. Bilevel problems arise in diverse applications across different fields, and have been the subject of study in a number of papers during the past few decades. In this talk we overview the bilevel linear and bilevel linear mixed integer programming including their applications, related computational complexity issues and solution methods.