Complexity of Integer Programming in Reverse Convex Sets via Boundary Hyperplane Cover

Robert Hildebrand*[1] and Adrian G¨oß[2]

[1]Virginia Tech [Blacksburg] – États-Unis
[2]Technische Universität Nürnberg – Allemagne

Résumé

We study the complexity of identifying the integer feasibility of reverse convex sets. We present various settings where the complexity can be either NP-Hard or efficiently solvable when the dimension is fixed. Of particular interest is the case of bounded reverse convex constraints with a polyhedral domain. We introduce a structure, {Boundary Hyperplane Cover}, that permits this problem to be solved in polynomial time in fixed dimension provided the number of nonlinear reverse convex sets is fixed.

*Intervenant