

Infeasible interior-point method for $P_*(\kappa)$ horizontal linear complementarity problem over Cartesian product of symmetric cones

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Abstract

We generalize the technique proposed in [2] for linear programming to $P_*(\kappa)$ horizontal linear complementarity problem over the Cartesian product of symmetric cones, or briefly Cartesian $P_*(\kappa)$ -SCHLCP, by using Euclidean Jordan algebras. This problem is a comprehensive optimization problem over symmetric cones, so that handling this problem removes the necessity of dealing with many other ones. The symmetrization of the search directions used in this paper is based on the Nesterov-Todd (NT) scaling scheme, and only full NT steps are used at each iteration. So, line searches are not longer needed. The derived complexity bound matches the best obtained one for infeasible interior-point methods with small-updates. The talk is based on a joint paper with Soodabeh Asadi and Hossein Mansouri (Shahrekord University, Iran) [1].

References

- [1] S. Asadi, H. Mansouri, and Zs. Darvay. An infeasible full-NT step IPM for $P_*(\kappa)$ horizontal linear complementarity problem over Cartesian product of symmetric cones. *Optimization*, 66(2):225–250, 2017.
- [2] Zs. Darvay. New interior point algorithms in linear programming. *Adv. Model. Optim.*, 5(1):51–92, 2003.