

# Exploring Complexity of Large Update Interior-Point Methods for $P_*(k)$ Linear Complementarity Problems Based on Kernel Function

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**Abstract.** Interior Point Methods not only are the most effective methods in practice but also have polynomial-time complexity. The large update interior point methods perform in practice much better than the small update methods which have the best known theoretical complexity. In this paper, motivated by the complexity results for linear optimization based on kernel functions, we extend a generic primal dual interior-point algorithm based on a new kernel function to solve  $P_*(k)$  linear complementary problems. We use some elegant and simple tools to get an iteration bound for the complexity of the algorithm.

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