KERNEL FUNCTION BASED INTERIOR–POINT ALGORITHMS FOR SEMIDEFINITE OPTIMIZATION

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Abstract. We propose a primal-dual interior-point algorithm for semidefinite optimization (SDO) based on a class of kernel functions which are both eligible and self-regular. New search directions and proximity measures are defined based on these functions. We show that the algorithm has $O\left(\sqrt{n} \log \frac{1}{\epsilon}\right)$ and $O\left(\sqrt{n} \log n \log \frac{1}{\epsilon}\right)$ complexity results for small- and large-update methods, respectively. These are the best known complexity results for such methods. This is the first algorithm for SDO based on this kernel function, as far as we know.


Keywords and phrases: semidefinite optimization; interior-point method; primal-dual method; small- and large-update method; polynomial complexity.

REFERENCES
