A New Short-Update Interior-Point Algorithm for Monotone Linear Complementarity Problems

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We introduce a new primal-dual interior-point algorithm for solving monotone linear complementarity problems. In order to follow the central path we apply Newton's method to obtain the search directions. We define a special displacement vector which can be obtained by a linear combination of the standard primal-dual direction [2], and the one introduced in [1]. In each iteration the algorithm performs only full-Newton steps. Using a new proximity measure to the central path we deduce that the Newton process is quadratically convergent. We prove that the method yields an ϵ-solution in polynomial time.

References

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