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A new method for \( P_*(\kappa) \) horizontal linear complementarity problem based on full Newton step. (Chinese. English summary) Zbl 07404430

Summary: In this paper, we describe a new interior point algorithm for solving \( P_*(\kappa) \) horizontal linear complementarity problem based on full Newton step. We show that the polynomial complexity of the algorithm is \( O(\sqrt{n}) \log \frac{(n+1+\kappa)}{\epsilon} \mu_0 \). In each iteration the algorithm performs only full-Newton step with the advantage that no line search is required. When the threshold value of the center path neighborhood is given and the barrier parameters are updated, it is proved that the full-Newtonian center neighborhood of the algorithm is locally quadratic convergent.

MSC:

90C33 Complementarity and equilibrium problems and variational inequalities (finite dimensions) (aspects of mathematical programming)
90C51 Interior-point methods

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horizontal linear complementarity; interior-point algorithm; full-Newton step; polynomial complexity