

A modification of the LP-Newton method under the Hölder metric subregularity assumption

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The LP-Newton method is a Newton-type method which deals with the problem of find a zero of a system of nonlinear equations and solves, at each iteration, a linear programming problem. One of the features of this method is the fact that it achieves the same local convergence order than the Newton method, even under weaker assumptions, [1]. A global version of this method was presented in [2], assuring that the Bouligand-stationarity condition is achieved for certain class of functions. At this work we present both local and global modifications to the LP-Newton method to deal with different assumptions than that considered in LP-Newton method, as the Hölder metric subregularity hypothesis.

References

- [1] F. FACCHINEI AND A. FISCHER AND M. HERRICH, *An LP-Newton method: nonsmooth equations, KKT systems, and non-isolated solutions*, Mathematical Programming, volume 146 (2014), p. 1-36.
- [2] A. FISCHER AND M. HERRICH AND A. IZMAILOV AND M. SOLODOV, *A globally convergent LP Newton method*, SIAM Journal of Optimization, volume 26 (2016), p. 2012-2033.