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互补约束优化问题的乘子序列部分罚函数算法

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A Multiplier Sequential Partial Penalization Algorithm for Mathematical Programs with Complementarity Constraints

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- 摘要
- 参考文献
- 相关文章

摘要 利用互补问题的Lagrange函数,
将互补约束优化问题(MPCC)转化为含参数的约束优化问题.
给出Lagrange乘子的简单修正公式,
并给出求解互补约束优化问题的部分罚函数法. 无须假设二阶必要条件成立,
只要算法产生的迭代点列的极限点满足互补约束优化问题的线性独立约束规范(MPCC-LICQ),
且极限点是MPCC的可行点, 则算法收敛到原问题的M-稳定点. 另外,
在上水平严格互补(ULSC)成立的条件下, 算法收敛到原问题的B-稳定点.

关键词: 互补约束优化问题 Lagrange函数 上水平严格互补 B-稳定点

Abstract: By using the Lagrangian function of the complementarity problem, a mathematical program with complementarity constraints (MPCC) is reformulated as a constrained optimization problem with the multiplier parameter. The simple modified strategy of the multiplier parameter is provided. Based on this, a multiplier sequential partial penalization algorithm for MPCC is proposed. Without requiring the second-order necessary condition, we show the limited point of the sequence (generated from the algorithm) is an M-stationary point if it is the feasible to MPCC and the MPCC linear independence constraint qualification (LICQ) holds. Moreover, it is B-stationary point if the upper lever strict complementarity(ULSC) holds.

Keywords: mathematical programs with complementarity constraints, , Lagrangian function, , upper lever strict complementarity, B-stationary point

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