

非线性约束优化的光滑化平方根罚函数

孟志青^{1,*}, 高嵩¹

1. 浙江工业大学经贸管理学院, 杭州 310023

Smoothed square-root penalty function for nonlinear constrained optimization

MENG Zhiqing^{1,*}, GAO Song¹

1. College of Economics and Management, Zhejiang University of Technology, Hangzhou 310023, China

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摘要 介绍一种非线性约束优化的不可微平方根罚函数, 为这种非光滑罚函数提出了一个新的光滑化函数和对应的罚优化问题, 获得了原问题与光滑化罚优化问题目标之间的误差估计. 基于这种罚函数, 提出了一个算法和收敛性证明, 数值例子表明算法对解决非线性约束优化具有有效性.

关键词: [非线性约束优化](#) [平方根罚函数](#) [精确性](#) [光滑](#)

Abstract: In this paper, we introduce a nonsmoothed square-root penalty function for nonlinear constrained optimization. We propose a smoothing function for the nonsmooth penalty function and define the corresponding smoothed penalty problem and obtain some error estimations among their optimal objective function values for the smoothed penalty problem and the original optimization problem. We develop an algorithm based on the smoothed penalty function and prove the convergence of the algorithm. Numerical examples show that the proposed algorithm is efficient for solving some nonlinear constrained optimization problems.

Keywords: [nonlinear constrained optimization](#), [square-root penalty function](#), [exactness](#), [smooth](#)

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通讯作者 孟志青 Email: mengzhiqing@zjut.edu.cn





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