论文

基于乘子法的静态非凸大系统的递阶优化方法

仲伟俊(1), 徐南荣(2), 陈森发(3)

(1)东南大学,南京210018;(2)东南大学,南京210018;(3)东南大学,南京210018

摘要　　大系统的递阶优化方法是解决许多实际问题的重要方法之一,它已广泛成功地应用于解决如工业过程控制、经济规划、城市供水系统的调度、水资源系统的管理及城市交通控制等许多领域的重大问题.从数学规划的观点看,递阶优化方法主要可分为两类,一类是基于数学规划中的拉格朗日函数法.该类方法利用拉格朗日函数能保持原问题所具

关键词
分类号

A HIERARCHICAL OPTIMIZATION METHOD OF NONCONVEX STATIC AND LARGE-SCALE SYSTEMS BASED ON THE MULTIPLIER METHOD

ZHONG WEI-JUN(1),XU NAN-RONG(2),CHEN SEN-FA(3)

(1)Southeast University,Nanjing 210018;(2)Southeast University,Nanjing 210018;(3)Southeast University,Nanjing 210018

Abstract In this paper,a new method for constructing the augmented Lagrangian function is pro-posed on the basis of the principle of multiplier methods.Under this construction,not onlyis a nonconvex problem convexified,but also the separability necessary for application of thehierarchical algorithm is preserved.The equivalency between the convexified problem andthe former problem is proven.Furthermore,with the aid of primal-dual methods,a hierar-chical optimization algorithm is proposed,and the rate of its convergence is analysed.Themethod has been successfully used to solve the optimal distribution problem of an urban watersupply system,and satisfactory results are obtained.

Key words

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