

数学与系统科学研究院

计算数学所学术报告

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报告题目:

**A line search exact penalty method
with bi-objective strategy for
nonlinear constrained optimization**

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计算数学所报告厅

Abstract:

The exact penalty methods are very popular because of their ability to handle degenerate problems and inconsistent constraint linearizations. This paper presents a line search exact penalty method with bi-object strategy (LSBO) for nonlinear constrained optimization. In the algorithm LSBO, the penalty parameter is selected at every iteration such that the sufficient progress toward feasibility and optimality is guaranteed along the search direction. In contrast with classical exact penalization approaches, LSBO method has two goals to determine whether the current iteration is successful or not. One is improving the feasibility and the other is reducing the value of the objective function. Moreover, the sequence of the penalty parameter is non-monotone, which does not affect the global convergence in theory and is seen to be advantageous in practice. It is shown that the algorithm enjoys favorable global convergence properties under the weaker assumptions. Numerical experiments illustrate the behavior of the algorithm on various difficult situations.

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