数学与系统科学研究院

计算数学所博士后定期学术报告

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报告题目：

Chebyshev Center of the Intersection of Balls: Complexity, Relaxation and Approximation

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311 报告厅

Abstract：

We study the n-dimensional problem of finding the smallest ball enclosing the intersection of p given balls, the so-called Chebyshev center problem (CC_B). It is a minimax optimization problem and the inner maximization is a uniform quadratic optimization problem (UQ). When p<=n, (UQ) is known to enjoy a strong duality and consequently (CC_B) is solved via a standard convex quadratic programming (SQP). In this paper, we first prove that (CC_B) is NP-hard and the special case when n=2 is efficiently and polynomially solvable. With the help of a newly introduced linear programming relaxation (LP), the (SQP) relaxation is reobtained more directly and the first approximation bound for the solution obtained by (SQP) is established for the hard case p>n. Finally, also based on (LP), we show that (CC_B) is polynomially solvable when either n or p-n(>0) is fixed.

欢迎大家参加！