The Hong Kong Polytechnic University
Department of Applied Mathematics

Seminar
On

An explicit exchange algorithm for linear semi-infinite programming problems with second-order cone constraints

by

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Abstract

In this paper, we propose an explicit exchange algorithm for solving semi-infinite programming problem (SIP) with second-order cone (SOC) constraints. We prove, by using the complementarity slackness conditions, that the algorithm terminates in a finite number of iterations and the obtained solution sufficiently approximates the original SIP solution. In existing studies on SIPs, only the nonnegative constraints were considered, and hence, the complementarity slackness conditions were separable to each scalar component. However, in our study, the existing componentwise analyses are no more applicable since the complementarity slackness conditions are associated with SOCs. In order to overcome such a difficulty, we introduce a certain coordinate system based on the spectral factorization. In the numerical experiments, we solve some test problems to see the effectiveness of the proposed algorithm. Especially, we compare our algorithm with two algorithms based on the linear SIP (LSIP) reformulation. Then we observe that, by exploiting the SDPT3 solver for subproblems, our algorithm finds the solution much faster than LSIP reformulation approaches when the size of problem is large.

Date : 19 December, 2008 (Friday)

Time : 3:00 – 4:00 p.m.

Venue : Departmental Conference Room HJ610
The Hong Kong Polytechnic University

*** * * ALL ARE WELCOME * * ***