

CORR 99-52

Some Fundamental Properties of Successive Convex Relaxation Methods on LCP and Related Problems

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Abstract General Successive Convex Relaxation Methods (SCRM) can be used to compute the convex hull of any compact set, in an Euclidean space, described by a system of quadratic inequalities and a compact convex set. Linear Complementarity Problems (LCPs) make an interesting and rich class of structured nonconvex optimization problems. In this paper, we study a few of the specialized lift-and-project methods and some of the possible ways of applying the general SCRM to LCPs and related problems.

Keywords Nonconvex Quadratic Optimization, Linear Complementarity Problem, Semidefinite Programming, Global Optimization, SDP Relaxation, Convex Relaxation, Lift-and-Project Procedures.

AMS Subject Classification 90C33, 52A27, 90C25, 90C05, 90C26