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INVITATION TO THE LECTURE

JANUARY 15, 2024 10:00 CONFERENCE ROOM

ACTIVE SET EXPANSION IMPROVEMENTS FOR MPGP ALGORITHM

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Modified proportioning with gradient projections (MPGP) is a successful method for solving quadratic programming problems with box constraints. It employs three types of steps: minimization on the free set using conjugate gradient method, expansion step to expand the active set using the fixed step length gradient projection method, and proportioning step to reduce the active set.

The expansion of the active set can be rather slow, and moreover, the expansion step is approximately twice as expensive as the other two steps. To reduce the number of expansion steps, we replace the gradient projection either with the projected conjugate gradient or the spectral projected gradient method. We present numerical experiments showcasing the effectiveness of each of the proposed approaches.