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ONE WORLD OPTIMIZATION SEMINAR

November 30th 2020 @ 15:30 CET (Central European Time)

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Several Observations about Using the ALM + Semismooth Newton Method for Solving Large Scale Semidefinite Programming and Beyond

Abstract. Semidefinite Programming (SDP) has been one of the major research fields in optimization during the last three decades and interior point methods (IPMs) are perhaps the most robust and efficient algorithms for solving small to medium sized SDP problems. For large scale SDPs, IPMs are no longer viable due to their inherent high memory requirements and computational costs at each iteration. In this talk, we will summarize what we observed during the last 15 years or so in combining the augmented Lagrangian algorithm with the semismooth Newton method for solving the dual of SDP and convex quadratic SDP of large scales. We will emphasize the importance of the constraint non-degeneracy in numerical implementations and the quadratic growth condition in convergence rate analysis. Easy-to-implement stopping criteria for the augmented Lagrangian subproblems will also be introduced. All these features are implemented in the publically available software packages SDPNAl/SDPNAL+ and QSDPNAL.

The link of the zoom-room of the meeting and the corresponding password will be announced the day before the talk on the mailing list of the seminar, to which one can subscribe on https://owos.univie.ac.at.