ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

INVITATION TO THE DOCTORAL SEMINAR

Integer Semidefinite Programming for the Quadratic Minimum Spanning Tree Problem

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Chaired by Angelika Wiegele | Department of Mathematics

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N.1.44

ABSTRACT

In the quadratic minimum spanning tree problem (QMSTP), one wants to find the minimizer of a quadratic function over all possible spanning trees of a graph. In this talk give two formulations of the QMSTP as mixed-integer semidefinite programs exploiting the algebraic connectivity of a graph. Based on these formulations, we derive a doubly nonnegative relaxation for the QMSTP and present valid inequalities to strengthen the relaxation using the Chvátal-Gomory procedure for mixed-integer conic programming. We present a version of the Peaceman-Rachford splitting method, which allows us to compute strong bounds for graphs from the literature up to 50 vertices, and report computation results.

We hope to see you there!