ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

INVITATION TO THE DOCTORAL SEMINAR

The Maximum Stable Set Problem and Semidefinite Relaxations

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Chaired by Angelika Wiegele | Department of Mathematics

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HS 3

ABSTRACT

In this talk we will introduce the maximum stable set problem on a graph G, a well-known NP-Hard problem in combinatorial optimization. We will review the classical linear programming formulation, along with a real world application which led to a semidefinite relaxation for this problem, known as the Lovász Theta function of a graph $\theta(G)$. Then we will discuss about a further strengthening of $\theta(G)$ proposed in literature, which turned out to be computationally demanding in the general case. Our contribution relies on the application of the lift-and-project operator N_+ introduced by Lovász and Schrijver, in order to obtain a new SDP relaxation for the maximum stable set problem in the attempt to both improve the bound given by $\theta(G)$ and keep its tractability in practice.

We hope to see you there!