ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

INVITATION TO THE DOCTORAL SEMINAR

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"The Maximum Stable Set Problem and Semidefinite Relaxations"

HS 3 | Wednesday, 30 March 2022 | 11:00 a.m.

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.

Angelika Wiegele and the Department of Mathematics look forward to seeing you at the talk!