

## **abstract**

COMPUTER SCIENCE/DISCRETE MATH SEMINAR, I  
Topic:

Speaker:

Affiliation:

Date:

Time/Room:

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Lovasz and Schrijver described a generic method of tightening the LP and SDP relaxation for any 0-1 optimization problem. These tightened relaxations were the basis of several celebrated approximation algorithms (such as for MAX-CUT, MAX-3SAT, and SPARSEST CUT).

We prove strong inapproximability results in this model for well-known problems such as MAX-3SAT, hypergraph VERTEX COVER and SET COVER. We show that the relaxations produced by as many as  $\Omega(n)$  rounds of the LS+ procedure do not allow nontrivial approximation, thus ruling out the possibility that the LS+ approach gives even slightly subexponential approximation algorithms for these problems.

We also point out why our results are somewhat incomparable to known inapproximability results proved using PCPs, and formalize several interesting open questions.

This is joint work with Mikhail Alekhnovich and Sanjeev Arora.