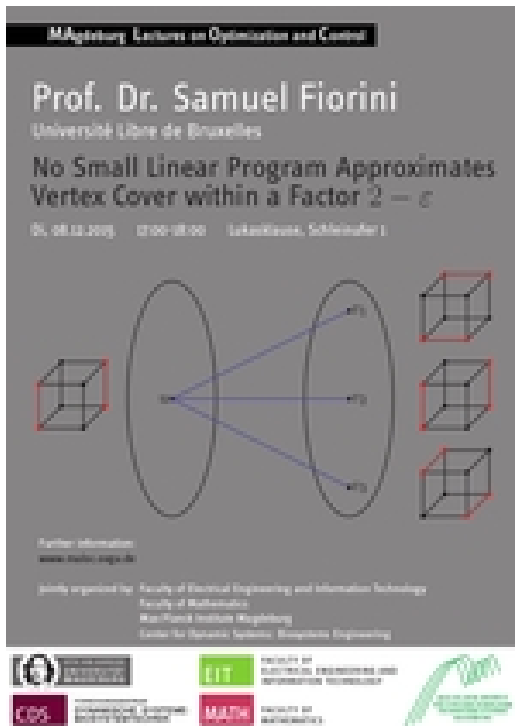


MAGDEBURG LECTURES ON OPTIMIZATION AND CONTROL

Samuel Fiorini



MAGdeburg, Lectures on Optimization and Control

Prof. Dr. Samuel Fiorini
Université Libre de Bruxelles

No Small Linear Program Approximates
Vertex Cover within a Factor $2 - \epsilon$

06.08.2015 17:00-18:00 (Lukasklausur, Schleifer 1)

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Faculty of Mathematics
Max-Planck Institute Magdeburg
Center for Systems Science, Robotics Engineering

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No Small Linear Program Approximates Vertex Cover within a Factor $2 - \epsilon$

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Time & Place

The presentation on December 8, 2015 will be given at the Lukasklausur, Schleifer 1, Magdeburg and starts at 5.00 p.m.

Abstract

The vertex cover problem is one of the most important and intensively studied combinatorial optimization problems. Khot and Regev (2003) proved that the problem is NP-hard to approximate within a factor $2 - \epsilon$, assuming Khot's famous Unique Games Conjecture (UGC). This is tight because the problem has an easy 2-approximation algorithm.

We prove the following unconditional result about linear programming (LP) relaxations of the problem: every LP relaxation that approximates vertex cover within a factor $2 - \epsilon$ has super-polynomially many inequalities.