Andreas Brieden (Technical University of Munich, Germany)

Title: Computing Maximal Independent Sets in Graphs by Means of Polytopal Approximations of l_p-spheres.

Abstract: In the realm of the algorithmic theory of convex bodies developed by Grötschel, Lovasz and Schrijver several algorithms for geometric optimization problems can be proved to be optimal by means of results for the approximation of l_p-spheres by polytopes. Some of the ideas underlying this proof can also be used to relate the problem of finding maximal independent sets in graphs to the computation of 'well-approximating' polytopes. Together with an inapproximability result for the graph theoretical problem this leads to new inapproximability results for the approximation of l_p-spheres by polytopes.
(Joint work with Peter Gritzmann)