1049-90-203   **Jesus A De Loera*** (`deloera@math.ucdavis.edu`), Dept of Mathematics, University of California, Davis, CA 95616. *Gauging feasibility of integer linear programs.*

Given an integer linear programming problem, $Ax = b$, $x \geq 0$, $x \in \mathbb{Z}^d$, we are interested on exploring new ideas for estimating the number of feasible solutions to the problem. This a well-known NP-hard problem, so we cannot expect positive results in all instances, but we aim to develop practical strategies that allows to discard infeasible problems in a large proportion of instances.

In this talk I report on the practical computational behavior of estimators arising from the solution of simple convex optimization problems recently introduced by Barvinok and Hartigan and from some reformulation techniques. Our numerical tests include knapsack problems, transportation problems. We also report on the binary feasibility problem case (i.e. x is a binary vector) through the study of market-split problems and other packing problems.

This is joint work, in progress, with A. Barvinok (U. Michigan). (Received March 03, 2009)

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