

Exploiting symmetries of lattice polytopes

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Abstract

Exploiting symmetry in integer linear programming and lattice point counting are two difficult problems for which no good general approach exists. In fact, standard techniques work particularly poor on symmetric problems. In this talk we give an overview about ongoing work on new symmetry exploiting techniques for these two fundamental problem classes involving lattice polytopes. We in particular present some new ideas of decomposing lattice polytopes and give some initial proof-of-concept results, applying these new techniques.