

Unimodular Triangulations and Covers

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We give a survey of results on the existence of unimodular triangulations of lattice polytopes P and rational cones C . In particular we will discuss the question of the existence of covers of multiples cP , $c \in \mathbb{N}$, by unimodular lattice simplices. Bruns and Gubeladze have established a bound c_d depending only on $d = \dim P$ such that cP is unimodularly covered for $c \geq c_d$. This bound is derived from a similar bound on the length of vectors in a cover of C by unimodular simplicial subcones. The order of magnitude of c_d has recently been improved considerably by von Thaden in his diploma thesis (Osnabrück 2004). It is subexponential and almost polynomial.