



Technische Universität Wien
Institut für Diskrete Mathematik und Geometrie

Einladung

zu einem

Vortrag

von

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Lattice polytopes with a given h -polynomial

Abstract: Let $P \subset \mathbf{R}^n$ be a lattice polytope of dimension n . It is well-known that

$$h(P, t) := (1-t)^{n+1} \left(\sum_{i \geq 0} |iP \cap \mathbf{Z}^n| t^i \right)$$

is a polynomial of degree $d \leq n$ with nonnegative integral coefficients. We show that for a given polynomial h there exists a finite number $N(h, n)$ of n -dimensional lattice polytopes $P \subset \mathbf{R}^n$ with $h(P, t) = h$ up to a $GL(n, \mathbf{Z})$ -transformation. One has $N(h, n) \leq N(h, n+1)$ and for sufficiently large n the number $N(h, n)$ does not depend on n . For some polynomial h one can explicitly compute the numbers $N(h, n)$ for all n .

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