

Institut f. Analysis und Zahlentheorie

Zahlentheoretisches Kolloquium

Freitag, 12. 1. 2018, 14:15 Uhr

Seminarraum Analysis-Zahlentheorie (NT02008), Kopernikusgasse 24/II

f-vectors of simplicial and simple polytopes

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The *f*-vector of a *d*-dimensional (convex) polytope *P* is defined as

$$f(P) = (f_0(P), f_1(P), \dots, f_d(P))$$

where $f_i(P)$ is the number of *i*-dimensional faces of *P*. The question is whether a given vector of non-negative numbers is the *f*-vector of a polytope. For $d \geq 4$, finding a complete characterization of *f*-vectors is an open problem. However, the so-called *g*-Theorem gives a description for *f*-vectors of simplicial and simple polytopes.

The purpose of this talk is to give a summary of the lectures of a summer school at MSRI on the *g*-Theorem and related topics.

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