

Doktoratskolleg Discrete Mathematics

**Advanced Topics Seminar**

Freitag, 11.03.2016, 10:15 Uhr

Seminarraum NT02008, 2. Stock, Kopernikusgasse 24

**Triangulations of simplotopes and  
a general formula for an arithmetic constant  
due to G. R. Everest**

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(TU Graz)

When counting the number of certain representations of units in number fields Graham Everest introduced an arithmetic constant  $c_{n,s} \in \mathbb{R}$  which depends on two parameters  $n$  and  $s$  in  $\mathbb{N}$ . This constant is the volume of a complicated  $n \cdot s$ -dimensional convex polytope. While Everest himself only proved that the constant is positive, some special cases have been treated and rough general boundaries have been given since. In this talk joint work of Michael Kerber, Robert Tichy and the speaker is presented in which a general formula for  $c_{n,s}$  has been conjectured and proven. It has been found that the convex polytope, the volume of which defines  $c_{n,s}$ , is essentially the projection of a so called simplotope - a Cartesian product of simplices. By application of a new lifting theorem for triangulations of convex polytopes the volumes of the complicated polytope and the simplotope of higher dimension could be compared and shown to be equal.

DK Koordinatoren