UNIVERSITÄT SALZBURG

SALZBURG MATHEMATICS COLLOQUIUM
Winter 2016/2017

Martin Widmer (London)

„From number theory to model theory via geometry“

November 24, 2016

Abstract:
Which subsets of $\mathbb{R}^n$ have the property that their m-volumes of the orthogonal projections to any m-dimensional subspace can be bounded solely in terms of the m-volumes of the projections to the m-dimensional coordinate spaces? Or which subsets of $\mathbb{R}^n$ have a boundary that can be parameterised by a fixed number of maps $\phi_i : [0,1]^{n-1} \to \mathbb{R}^n$, each satisfying a Lipschitz condition with Lipschitz constant a fixed multiple of the diameter of the set? These geometric problems are motivated by concrete number theoretic problems (on the distribution of lattice points in subsets of $\mathbb{R}^n$). It turns out that o-minimality, a notion from model theory, is a great tool to describe large classes of sets in $\mathbb{R}^n$ with these required properties. The aim of this talk is to give a short gentle introduction to o-minimality, and then to show the power of this concept by means of concrete examples. (Parts of the talk are joint work with Fabrizio Barroero.)

Thursday, **15:00-15:45**
Hörsaal 414, 1. Stock

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