

SALZBURG MATHEMATICS COLLOQUIUM

Winter 2018/2019

David Masser (Basel)

„Solving polynomial-exponential equations“

December 6, 2018

Abstract:

Inspired by Schanuel's Conjecture, Boris Zilber has proposed a "Nullstellensatz" (also conjectural) asserting which sorts of polynomial-exponential equations in several variables have a complex solution. Last year Dale Brownawell and I published a proof in the situation which can be regarded as "typical". But it does not cover all situations for two variables, some of which involve simply stated problems in one variable like finding complex $z \neq 0$ with $e^z + e^{1/z} = 1$. Recently Vincenzo Mantova and I have settled the general case of two variables. We describe our methods – for example, to solve

$$e^z + e^{\sqrt[9]{1-z^9}} = 1$$

we use theta functions on \mathbb{C}^{28} .

Thursday, **15:00-15:45**

Hörsaal 414, 1. Stock