



Der Wissenschaftsfonds.



Institut für Analysis und Zahlentheorie

## Zahlentheoretisches Kolloquium

18.11.2022, 14:00 Uhr

Seminarraum Analysis-Zahlentheorie, Kopernikusgasse 24, 2.OG

# Twisted Lang-Weil estimates and definable quotients

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By a celebrated result of Ax from the 60s, everything non-trivial that can be said about 'large' finite fields follows from the Lang-Weil estimates. This may be made precise with the help of so-called pseudofinite fields.

A twisted version of the Lang-Weil estimates, due to Hrushovski, leads to an analogous result on the  $q$ -Frobenius automorphism, where  $q$  is a 'large' prime power, ultimately showing that the non-standard Frobenius automorphism satisfies a Nullstellensatz for difference polynomials.

In the talk, we will first give an overview of these results, and we will then present a classification of definable quotients in algebraically closed fields endowed with a non-standard Frobenius automorphism, also in case a non-trivial valuation is added to the structure.

M. Wibmer