



Der Wissenschaftsfonds.



Online talk series

It is a pleasure to announce a guest lecture with the title

A Polynomial Roth Theorem for Corners in the Finite Field Setting

SPEAKER: Michael Lacey

TIME: Thursday, 04.02.2021,

Abstract: An initial result of Bourgain and Chang has led to a number of striking advances in the understanding of polynomial extensions of Roth's Theorem. The most striking of these is the result of Peluse and Prendiville which show that sets in $[1, \dots, N]$ with density greater than $(\log N)^{-c}$ contain polynomial progressions of length k (where $c = c(k)$). There is as of yet no corresponding result for corners, the two dimensional setting for Roth's Theorem, where one would seek progressions of the form $(x, y), (x+t^2, y), (x, y+t^3)$ in $[1, \dots, N]^2$, for example. Recently, the corners version of the result of Bourgain and Chang has been established, showing an effective bound for a three term polynomial Roth theorem in the finite field setting. We will survey this area. Joint work with Rui Han and Fan Yang.

The talk series is supported by the **FWF Special Research Program (SFB) Quasi-Monte Carlo Methods: Theory and Applications** and partly funded by the Austrian Science Fund FWF, **Project No. J 4138-N32**.