



Der Wissenschaftsfonds.



JOHANNES KEPLER  
UNIVERSITÄT LINZ

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## Online talk series

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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, 05:00 - 05:45 pm.

**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.

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