

# The Erdős discrepancy problem over the function fields

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The famous Erdős discrepancy problem (now theorem due to Tao) asserts that for any sequence  $\{a_n\}_{n \geq 1} = \{-1, 1\}^{\mathbb{N}}$ ,

$$\sup_{n,d} \left| \sum_{k=1}^n a_{kd} \right| = \infty.$$

It was observed during the Polymath5 project (run by Gowers), that the analog of this statement over the polynomial ring  $\mathbb{F}_q$  is false. In this talk, we discuss "corrected" form of EDP over  $\mathbb{F}_q[x]$  explaining some features that are not present in the number field setting. The talk is based on work in progress which is joint with A. Mangerel (CRM) and J. Teravainen (Oxford).