

On the Erdős flat polynomials problem and Chowla conjecture

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In this talk I will present my recent contribution on the Erdős flat polynomials problems and its connections. I will further present some ingredients and ideas of the proof of the following fact:

There are no square L^2 -flat sequences of polynomials of the type

$$\frac{1}{\sqrt{q}}(\epsilon_0 + \epsilon_1 z + \epsilon_2 z^2 + \cdots + \epsilon_{q-2} z^{q-2} + \epsilon_q z^{q-1}),$$

where for each j , $0 \leq j \leq q-1$, $\epsilon_j = \pm 1$.

As a consequence, we obtain that the Erdős-Newman conjectures on Littlewood polynomials holds. It follows that Turyn-Golay's conjecture, that is , there is only finitely many Barker sequences.

I will discuss further the connection between Flat polynomials problem and Chowla conjecture which assert that the Liouville function is normal.