Lajos Hajdu: Indecomposability of sequences defined by polynomials and by narrow sets of primes

A set $\mathcal{A}$ of positive integers is called additively or multiplicatively irreducible if it cannot be written as $\mathcal{A} = \mathcal{B} + \mathcal{C}$ or $\mathcal{A} = \mathcal{B} \cdot \mathcal{C}$, respectively, with $\mathcal{B}, \mathcal{C} \subset \mathbb{N}$, $|\mathcal{B}|, |\mathcal{C}| \geq 2$. In the talk we summarize recent results about the additive and multiplicative irreducibility, in the asymptotic sense, of sets $\mathcal{A}$ being a set of values of an integer polynomial, or being composed of a narrow set of primes. While these questions are strongly related to classical problems in additive and multiplicative number theory, in the proofs we need to combine deep tools from the theory of polynomial and exponential Diophantine equations with various methods from prime number theory, graph theory and combinatorics.

The presented new results are joint with **K. Győry** and **A. Sárközy**.