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zve všechny zájemce
na přednášku

Quasi-Randomness and the Regularity Method in Hypergraphs

kterou prosloví

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ve čtvrtek 6. prosince 2018
v 10:30 hod.
ve velké posluchárně
Matematického ústavu AV ČR,
Žitná 25, Praha 1.



Jde o patnáctou přednášku konanou
v rámci cyklu reprezentačních přednášek
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jednoho z nejvýznamnějších českých
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Jiří Rákosník, ředitel

Quasi-Randomness and the Regularity Method in Hypergraphs

The probabilistic method is one of the most successful techniques in combinatorics. It enables one to prove results about nonrandom objects by immersing them into specially designed probability spaces. Another important concept in combinatorics, which appeared more recently, is quasi-randomness. A quasi-random object is an object that shares properties that are “typical” for random objects. One of the most applicable results is the well-known Szemerédi Regularity Lemma, which asserts, roughly speaking, that every graph can be decomposed into a small number of quasi-random graphs.

In this lecture we will mention connections of problems about arithmetic progressions with results about regularity. Then we will describe a generalization of the Szemerédi Regularity Lemma to hypergraphs. (Hypergraphs are structures generalizing graphs consisting of hyperedges, subsets of a fixed size > 2 , instead of edges, which are subsets of size 2.) Finally, we will outline how Szemerédi’s Theorem, which implies the existence of arbitrarily long arithmetic progressions in subsets of natural numbers of positive density, can be deduced from the hypergraph regularity lemma.

