DocCourse Prague 2005

MODERN METHODS IN RAMSEY THEORY

Programme coordinators:
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MODERN METHODS *in* RAMSEY THEORY

PROGRAM FOR THE 3RD WEEK FEBRUARY 7 - FEBRUARY 11

All lectures are held in S5 unless noted otherwise

Mo, Feb 7

09-12 *V. Rödl* MODERN METHODS IN RAMSEY THEORY

14-17 *M. Schacht, Z. Dvořák* EXERCISES

Tu, Feb 8

09-12 *V. Rödl* MODERN METHODS IN RAMSEY THEORY

14-17 *M. Schacht, Z. Dvořák* EXERCISES

We, Feb 9

54TH MATHEMATICAL COLLOQUIUM

10.30 *B. Green* ARITHMETIC PROGRESSIONS IN THE PRIMES

Th, Feb 10

10 *B. Green* THE GOWERS U^3 NORM AND ITS APPLICATIONS

Vojtěch Rödl

LECTURES

Monday:

Discussion of Szemerédi's Regularity Lemma, its proof and limitations.
Proof of the Theorem of Ruzsa and Szemerédi.
Another proof of Roth's Theorem.

Tuesday:

Proof of the Counting Lemma and discussion of its extensions.
Solymosi's proof of the Ajtai-Szemerédi Theorem.
Discussion of the Burr-Erdős Conjecture.

54TH MATHEMATICAL COLLOQUIUM

Ben Green

ARITHMETIC PROGRESSIONS IN THE PRIMES

I will outline the recent proof that there are arbitrarily long arithmetic progressions of primes, which is joint work with Terry Tao.

Ben Green

THE GOWERS U^3 NORM AND ITS APPLICATIONS

The Gowers U^3 norm is one of a series of norms on the space $C(G)$ of complex valued functions on a finite abelian group G. These norms are called the Gowers U^d norms. The Gowers U^{k-1} norm is relevant to the study of arithmetic progressions of length k. The U^2 norm is well understood, largely because the U^2 norm of a function f is just the L^4 norm of the Fourier transform of f. I will discuss the U^3 norm, attempting to answer the following questions:

- What is the U^3 norm?
- Why is it useful for studying arithmetic progressions of length 4?
- When is the U^3 norm of f large?
- How can this help us count the number of 4-term arithmetic progressions of primes less than N?