Queen Mary, University of London & The London School of Economics and Political Science

Two One-Day Colloquia in Combinatorics, 2013

15th & 16th May 2013

Event organisers: Prof Peter Keevash (QMUL) and Dr Jozef Skokan (LSE)

The website associated with the conference is:
http://www2.lse.ac.uk/maths/Seminars/Colloquia_2013.aspx

The conference followed the successful format established over the past seven years: six invited talks were delivered on each of the two days. The meeting went according to plan, and our expectations were met in full. Most participants attended both days. The conference attracts both excellent speakers and a steadily growing audience, with participants coming not only from the UK but also from continental Europe.

The Queen Mary day started with two talks on topics from extremal graph theory: first, Anusch Taraz surveyed recent results and methods for finding spanning subgraphs in a given host graph, and he also discussed how to adopt these methods for the use in Ramsey theory. Then, Julia Böttcher gave a great talk about the new extension of the Blow-up Lemma to sparse graphs and its applications. Afterwards, Wojciech Samotij talked about counting and describing the typical structure of homomorphisms between graphs and Danny Hefetz spoke about finding winning strategies in two-player games on graphs. In the next talk, Simon Griffiths gave an excellent exposition of some of the recent intriguing work on the triangle-free processes that yielded the best known lower bounds on the Ramsey number R(3,k). The programme culminated in an excellent talk by Ben Green who outlined the proof of a conjecture of Paul Erdős from 1965: For every $c>0$ there exists a set A of n integers with the following property: every subset B of A with at least $(1/3 + c)n$ elements contains three distinct elements x, y, z with $x + y = z$.

At the LSE day, the first talk was by Roman Glebov who discussed thresholds for the appearance of bounded-degree spanning trees in the random graph G(n, p). In the next talk, Endre Szemerédi (2012 Abel Prize Laureate) revisited some classical results proved 20 years ago using his famous Regularity Method and showed how to obtain quantitative improvements of the same results by avoiding the very same Regularity Method. The morning session was concluded by Gábor Kun who talked on the measurable version of the Lovász Local Lemma. In the afternoon, Viresh Patel gave a beautiful talk about his recent proof of a conjecture of Thomassen on Hamilton cycles in highly connected tournaments. Afterwards, Julia Wolf spoke about the role of almost periodicity results for sumsets in additive combinatorics. The final talk, the traditional Norman Biggs lecture, was delivered by Noga Alon. In his captivating talk, Professor Alon talked about random Cayley graphs of finite groups and discussed their connection and relations to problems in combinatorial number theory and information theory.

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