Partition Regular Equations

Professor Imre Leader,
University of Cambridge

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School of Physical and Mathematical Sciences

Abstract

A finite or infinite matrix M is called 'partition regular' if whenever the natural numbers are finitely coloured there exists a monochromatic vector x with Mx=0. Many of the classical results of Ramsey theory, such as van der Waerden's theorem or Schur's theorem, may be naturally rephrased as assertions that certain matrices are partition regular. While the structure of finite partition regular matrices is well understood, little is known in the infinite case. In this talk we will review some known results and then proceed to some recent developments. The talk will not assume any previous knowledge of the area.

Speaker Biography

Imre Leader is a Professor of Pure Mathematics at the University of Cambridge. His research work has concentrated on Graph Theory and Combinatorics particularly in isoperimetric inequalities, extremal Combinatorics and Ramsey Theory. Educated at St Paul’s School (1976 – 1980) and Trinity College, Cambridge (1981 – 1989), he was a member of the British team in the International Mathematical Olympiad in 1981: he later led the team from 1999 to 2001 (and is still heavily involved with Olympiad training). He was also the Chief Coordinator and Problems Group Chairman for IMO 2002. He was a Fellow at Peterhouse (Cambridge) 1989-1996, Reader in Mathematics, University College London from 1996-2000, Lecturer in Pure Mathematics, Cambridge 2000-2002 and Reader in Pure Mathematics, Cambridge from 2002-2005. He was also awarded Whitehead Prize of London Mathematical Society in 1999. He obtained his PhD in 1989, supervised by Béla Bollobás. He is currently a fellow of Trinity College, Cambridge.

Host: Division of Mathematical Sciences, School of Physical and Mathematical Sciences