Some recent applications of the regularity method

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008 Kemeny, 4:00PM
(3:30 Tea, 300 Kemeny)

Abstract

In this talk we will give an overview of the regularity method in extremal graph theory based on the Regularity Lemma and the Blow-up Lemma. We will present some recent applications of the method. In particular, we will focus on the following problem: Say we are given fixed positive integers s, t and a family of graphs F. Minimizing over all t-edge colorings of the complete graph on n vertices, we ask for the maximum number of vertices that can be covered by at most s monochromatic members of F.

This problem unites two classical problems: at one end of the spectrum $(s = 1)$ we have the Ramsey problem, while at the other end we have cover problems. But there are some interesting problems "in-between" as well. Many of the results are joint with András Gyárfás and/or Endre Szemerédi.

This talk should be accessible to graduate students.