

Discrete Mathematics Seminar

Illinois State University

2:00–2:50 pm, March 23

Speaker: Emily Heath, Iowa State University

The Erdős-Gyárfás problem on generalized Ramsey numbers

A (p, q) -coloring of a graph G is an edge-coloring in which each p -clique contains at least q colors. We are interested in the function $f(n, p, q)$, first introduced by Erdős and Shelah, which is the minimum number of colors needed for a (p, q) -coloring of the complete graph K_n . Note that determining $f(n, p, 2)$ is equivalent to the classical multicolor Ramsey problem for cliques. The systematic study of this function was initiated by Erdős and Gyárfás in 1997. Among other results, they gave upper and lower bounds on $f(n, p, p)$ which are still the best known bounds for general p today. In this talk, I will give an overview of this problem and describe recent improvements on the probabilistic upper bound of Erdős and Gyárfás for several small cases of p . This is joint work with Alex Cameron.

