

VCU Discrete Mathematics Seminar

The Erdős-Gyárfás Problem on Generalized Ramsey Numbers

**Prof Emily Heath
(Iowa State)**

Wednesday, Oct. 5
1:00-1:50 EST

Watch party in 4145 Harris Hall
& Zoom @ <https://vcu.zoom.us/j/92975799914>
password=graphs2357



A (p, q) -coloring of a graph G is an edge-coloring of G (not necessarily proper) in which each p -clique contains edges of at least q distinct 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 .

In 1997, Erdős and Gyárfás initiated the systematic study of this function. 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.

For the DM seminar schedule, see:

<https://vcumath.github.io/Seminar/dms.html>