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Math 269 - Combinatorics

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Ordered size Ramsey number of paths

Abstract:

The Erdős–Szekeres theorem can be interpreted as saying that in any red-blue edge-coloring of an ordered complete graph on $rs + 1$ vertices, there is a red ordered path of length r or a blue ordered path of length s. We consider the size Ramsey version of this problem and show that $\tilde{r}(P_r, P_s)$, the least number of edges in an ordered graph with this Ramsey property, satisfies

$$\frac{1}{8}r^2 s \leq \tilde{r}(P_r, P_s) \leq Cr^2 s(\log s)^3$$

for any $2 \leq r \leq s$, where $C\,0$ is a constant. This is joint work with József Balogh, Felix Clemen, and Emily Heath.

Host: Jacques Verstraete

Tuesday, November 26, 2019
2:00 PM
AP&M 7321

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