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 $\hat{r}(P_r, P_s)$, the least number of edges in an ordered graph with this Ramsey property, satisfies

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

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

Host: Jacques Verstraete

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