

1025-05-76

Ajit Diwan and **Dhruv Mubayi*** (mubayi@math.uic.edu). *Turan's theorem with colors.*

Suppose that R (red) and B (blue) are graphs on the same vertex set of size n . We conjecture that if R and B each have more than $(1 - 1/k)n^2/2$ edges, and K is a $(k + 1)$ -clique whose edges are arbitrarily colored with red and blue, then $R \cup B$ contains a colored copy of K , for all $k + 1 \notin \{4, 6, 8\}$. If $k + 1 \in \{4, 6, 8\}$, then the same conclusion holds except for one specific edge-coloring of K_{k+1} .

I will indicate a proof of some special cases of this conjecture, one of which provides a new proof of Turán's theorem. This is joint work with Ajit Diwan. (Received January 15, 2007)