Anti-Ramsey numbers of loose paths and cycles in uniform hypergraphs

Tong Li

Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China

Abstract

For a fixed family of r-uniform hypergraphs $\mathcal{F}$, the anti-Ramsey number of $\mathcal{F}$, denoted by $ar(n, r, \mathcal{F})$, is the minimum number c of colors such that for any edge-coloring of the complete r-uniform hypergraph on n vertices with at least c colors, there is a rainbow copy of some hypergraph in $\mathcal{F}$. Here, a rainbow hypergraph is an edge-colored hypergraph with all edges colored differently. Let $\mathcal{P}_k$ and $\mathcal{C}_k$ be the families of loose paths and loose cycles with k edges in an r-uniform hypergraph, respectively. In this paper, we determine the exact values of $ar(n, r, \mathcal{P}_k)$ and $ar(n, r, \mathcal{C}_k)$ for all $k \geq 4$ and $r \geq 3$. Joint work with Yucong Tang and Guiying Yan.

E-mail address: litong@amss.ac.cn