

CYCLE-COMPLETE HYPERGRAPH RAMSEY NUMBERS

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Time: Wed, Nov. 23rd, 13:30-14:00

Venue: Room 106, SCMS

Abstract:

Given a set of r -uniform hypergraphs F , the Ramsey numbers $R(t, F)$ denote the minimum n such that every n -vertex r -uniform hypergraph contains either a member of F as subgraph or an independent set of size t . Determining the magnitude of the cycle-complete graph Ramsey numbers are classic problems in extremal combinatorics which have been studied extensively. For cycle-complete hypergraph Ramsey numbers, Kostochka, Mubayi and Verstraete conjectured that $R(t, C_k^r) = t^{k/(k-1)+o(1)}$. Here C_k^r represents r -uniform linear cycle of length k . Towards this conjecture, we proved that the upper bound is true for even numbers k and $r=3$ if we replace C_k^r with B_k^r . Here B_k^r represents the family of r -uniform nontrivial Berge cycles of length k . Moreover, we show that if a conjecture of Erdos and Simonovits on girth in graphs is true, then we can find constructions that match the Kostochka-Mubayi-Verstraete conjecture.