Guangzhou Discrete Mathematics Seminar

A Ramsey type problem for highly connected subgraphs

Qiqin Xie

Shanghai University, Shanghai, China

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Bollobás and Gyárfás conjectured that for any integers k, n with $n > 4(k-1)$, every 2-edge-coloring of the complete graph on n vertices leads to a k-connected monochromatic subgraph with at least $n - 2k + 2$ vertices. We find a counterexample with $n = \lfloor 5k - 2.5 - \sqrt{8k - \frac{31}{4}} \rfloor$, thus disproving the conjecture, and we show the conclusion holds for $n > 5k - 2.5 - \sqrt{8k - \frac{31}{4}}$ when $k \geq 16$. This is joint work Chunlok Lo and Hehui Wu.

Guangzhou Discrete Mathematics Seminar
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