

Colored subgraphs whose forbiddance implies monochromatic connectivity

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Abstract

A conjecture of Bollobás and Gyárfás roughly states that if a graph is sufficiently large, then either the graph or its complement will contain an almost spanning highly connected subgraph. This can be translated in a very natural way to 2-edge-colorings of large complete graphs, where the result immediately breaks down when more colors are introduced. It turns out that forbidding colored subgraphs can rescue the problem and yield similar results. The rainbow forbidden subgraphs have been classified while the set of properly colored forbidden subgraphs remains elusive. In this talk, we survey the results in this area, particularly progress toward the original conjecture.

Keywords: graph, edge coloring, rainbow coloring.