

Discrete Mathematics Seminar

Illinois State University

2:00–2:50 pm, August 19

Speakers: Andrew Hatfield and Elizabeth Grimm, Illinois State University

Hamiltonicity of 3-tough $(K_2 \cup 3K_1)$ -free graphs

Chvátal conjectured in 1973 the existence of some constant t such that all t -tough graphs with at least three vertices are hamiltonian. While the conjecture has been proven for some special classes of graphs, it remains open in general. We say that a graph is $(K_2 \cup 3K_1)$ -free if it contains no induced subgraph isomorphic to $K_2 \cup 3K_1$, where $K_2 \cup 3K_1$ is the disjoint union of an edge and three isolated vertices. We show that every 3-tough $(K_2 \cup 3K_1)$ -free graph with at least three vertices is hamiltonian.

