

Discrete Mathematics Seminar

Illinois State University

2:00–2:50 pm, October 28

Speakers: Elizabeth Grimm (Illinois State U), Anna Johnsen (Georgia State U)

Existence of 2-Factors in Tough Graphs without Forbidden Subgraphs

For a given graph R , a graph G is R -free if G does not contain R as an induced subgraph. It is known that every 2-tough graph with at least three vertices has a 2-factor. In working on graphs with restricted structures, it was shown that every $2K_2$ -free $3/2$ -tough graph with at least three vertices has a 2-factor, and the toughness bound $3/2$ is best possible. In viewing $2K_2$, the disjoint union of two edges, as a linear forest, for any linear forest R on 5, 6, or 7 vertices, we find the sharp toughness bound t such that every t -tough R -free graph on at least three vertices has a 2-factor.

