Combinatorics Seminar

Thursday, February 27, 2003

3:00 pm in Hume 331

Dr. Bing Wei

Department of Mathematics
The University of Mississippi

Graph Minors and Linkages

ABSTRACT

Let s_1, s_2, ..., s_k be k positive integers. A graph G is said to be $(s_1, s_2, \ldots, s_k)$-*linked* if it has at least $\sum_{i=1}^{k} s_i$ vertices and for any k disjoint vertex sets S_1, S_2, ..., S_k with $|S_i| = s_i$, then G contains vertex-disjoint connected subgraphs F_1, F_2, ..., F_k such that $S_i \subseteq V(F_i)$. The case $s_1 = s_2 = \ldots = s_k = 2$ has been studied extensively. A $(2, 2, \ldots, 2)$-linked graph is called a k-linked, i.e., for any $2k$ distinct vertices x_1, y_1, x_2, y_2, ..., x_k, and y_k there exist k vertex-disjoint paths P_1, P_2, ..., P_k such that P_i joins x_i and y_i, $1 \leq i \leq k$. A graph H is a *minor* of a graph G if H can be obtained from G by deleting edges and/or vertices and contracting edges. An H-minor of G is a minor isomorphic to H. We will introduce some related concepts and study the relationship between the graph minors and linkages. Several interesting results and further research problems will be presented. We will also show the outlines of the proof ideas for some recent results. This is a joint work with Chen, Gould, Kawarabayashi and Pfender.