Discrete Mathematics Seminar

Time: Friday, 26 February 2010, 12:30–1:30 PM
Location: 238 Derrick Hall
Title: Packing of Steiner trees and S-connectors in graphs
Speaker: Huhui Wu, Mathematics Department, University of Illinois at Urbana-Champaign

Abstract:

Nash-Williams and Tutte independently characterized when a graph has $k$ edge-disjoint spanning trees; a consequence is that $2k$-edge-connected graphs have $k$ edge-disjoint spanning trees. Kriesell conjectured a more general statement: defining a set $S \subseteq V(G)$ to be $j$-edge-connected in $G$ if $S$ lies in a single component of any graph obtained by deleting fewer than $j$ edges from $G$, he conjectured that if $S$ is $2k$-edge-connected in $G$, then $G$ has $k$ edge-disjoint trees containing $S$. Lap-Chi Lau proved that the conclusion holds whenever $S$ is $24k$-edge-connected in $G$.

We improve Lau’s result by showing that it suffices for $S$ to be $6.5k$-edge-connected in $G$. In this talk, we will also give analogous results for packing two strong objects called $S$-Steiner-forests and $S$-connectors, which will be defined in the talk.