

# SE&T Colloquium Series

## Winter 2008

SPEAKER

Dr. Eddie Cheng  
Professor of Mathematics and Statistics  
Oakland University

TITLE

*Wheel-type Inequalities for Stable (Multi-)Set Polytopes*

ABSTRACT

A stable set in a graph is a set of nonadjacent vertices. If a vertex is allowed to be included more than once subject to certain restrictions, then it is a stable multi-set. The objective is to find one with the largest size or one with the largest weight if weights are assigned to the vertices. This problem is NP-hard. The most popular method is to cast it as an integer linear program. Currently, the state-of-the-art approach to an integer linear programming problem (ILP) is to apply a branch-cut-price algorithm. Such an algorithm has three components: branch, cut and price. There are cuts available for general ILP. However, for problems that are formulated from a combinatorial problem, specific cuts dedicated to a specific problem need to be developed. In this talk, I will talk about these strong cuts for the stable set problems and their corresponding separation problems. I will digress frequently during the talk.

DATE

Tuesday, April 8

TIME

4:30 – 5:20pm

PLACE

Pioneer 240

Refreshments will be served at 4:15pm.