Discrete Mathematics Seminar

Time: Friday, 6 March 2015, 2:00 – 3:00 PM
Location: 237 Derrick Hall
Title: Bounding the Forcing Number of a Graph
Speaker: Mr. Randy Davila, Department of Computational and Applied Mathematics, Rice University

Abstract:

Given a simple graph $G$, the forcing number, denoted $F(G)$, is an upper bound for the maximum nullity of all symmetric matrices with a sparsity pattern described by the graph. One simple lower bound is $\delta \leq F(G)$, where $\delta$ is the minimum degree of $G$. In this talk, an improvement of this bound is given in the case that $G$ has girth $g \geq 5$. In particular, it is shown that $2\delta - 2 \leq F(G)$ for graphs with $g \geq 5$; this can be further improved when $G$ has a small cut set. Lastly, we conjecture for graphs with a given girth $g$, that $\delta + (\delta - 2)(g - 3) \leq F(G)$. 