

Discrete Mathematics Seminar

Time: Friday, 1 May 2015, 2:00 – 3:00 PM

Location: 237 Derrick Hall

Title: On the bondage number of a graph in terms of its maximum degree and Euler characteristic

Speaker: Dr. Jian Shen, Mathematics Department

Abstract:

The bondage number $b(G)$ of a graph G is the smallest number of edges whose removal from G results in a graph with larger domination number. Let G be embeddable on a surface whose Euler characteristic χ is as large as possible, and assume $\chi \leq 0$. Gagarin-Zverovich and Huang have recently found upper bounds of $b(G)$ in terms of the maximum degree $\Delta(G)$ and the Euler characteristic $\chi(G) = \chi$. In this talk we prove a better upper bound $b(G) \leq \Delta(G) + \lfloor t \rfloor$ where t is the largest real root of the cubic equation $z^3 + z^2 + (3\chi - 8)z + 9\chi - 12 = 0$; this upper bound is asymptotically equivalent to $b(G) \leq \Delta(G) + 1 + \lfloor \sqrt{4 - 3\chi} \rfloor$. This is joint work with Jia Huang of University of Nebraska at Kearney.