Discrete Mathematics Seminar

Time: Friday, 12 April 2013, 1:00 – 2:00 PM
Location: 238 Derrick Hall
Title: Problems related to the Generalized Petersen Graphs
Speaker: Sarah Hanusch, Mathematics Department

Abstract:

Given two relatively prime integers n and k, the Generalized Petersen Graph $GP(n, k)$ consists of two cycles of n vertices connected by spokes which join the ith vertex of the first cycle to the $(ki \mod n)^{th}$ vertex in the second cycle. Recently, I have been working on problems related to this family of graphs.

One problem is determining bounds for the r-component connectivity and the r-component edge connectivity of the Generalized Petersen Graphs. The r-component connectivity measures the minimum number of vertices whose failure results in a network with at least r components. Similarly, the r-component edge connectivity measures the minimum number of edges whose failure results in a network with r components. This work is joint with Daniela Ferrero.

Another problem is counting the number of isomorphisms classes for Generalized Petersen Graphs of a given order. This problem has been reduced to a simple to state, but surprisingly difficult to solve algebra problem.