

DEPARTMENT OF MATHEMATICS COLLOQUIUM
UNIVERSITY OF WEST GEORGIA

2:30 PM, FRIDAY, NOVEMBER 9, 2007, BOYD 307

Speaker: Alan P. Sprague, University of Alabama at Birmingham, sprague@cis.uab.edu

Title: **Sum-Product Graphs and the Real Projective Plane**

A *sum-product graph* is a graph in which each vertex v is assigned two numbers, a tolerance $t(v)$ and a rank $r(v)$, and in which vertices v and w are adjacent iff the sum of their tolerances is less than the product of their ranks.

We show that the sum-product graphs may also be defined in terms of a polarity of the real projective plane. This alternate definition makes it easy to see that some split graphs are not sum-product graphs. Lastly, we will make some comments regarding algorithms.

Inspired by threshold tolerance graphs and some other similarly defined classes, Golumbic and Jamison defined a whole galaxy of graph classes (Journal of Graph Theory, 2006), which includes interval graphs and tolerance threshold graphs. Sum-product graphs are the most notable new class of graphs in this galaxy.